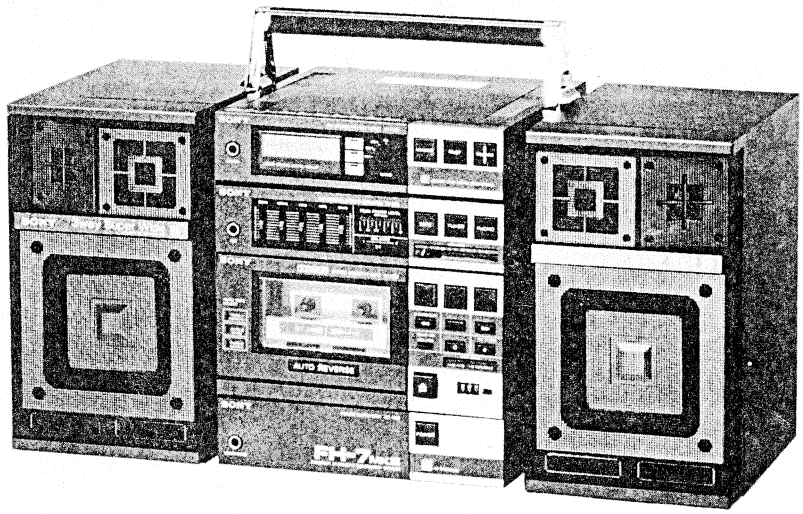
2077

FH-7MK III

SERVICE MANUAL

E Model

300713



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MICROFILM

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

COMPACT HI-DENSITY COMPONENT SYSTEM

SONY®

AUD 2077

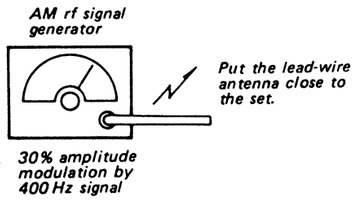
SECTION 2
ADJUSTMENTS

MW/SW SECTION

Setting:

BAND selector switch: MW, SW1 or SW2

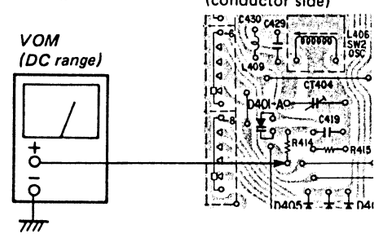
AM CH. SPACE switch: 9kHz



- Repeat the procedures in each adjustment several times, and the OSC voltage and tracking adjustments should be finally done by the trimmer capacitors.

MW/SW1/SW2 OSC Voltage Adjustment

Setting:

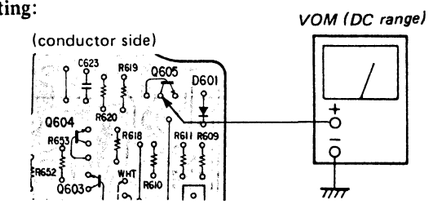


Procedure:

1. Set BAND selector switch (S1) to MW.
2. Push TUNING (+, –) button for 531kHz. Adjust L402 for 1.0 – 1.1V VOM reading.
3. Push the button for 1,602kHz. Adjust CT406 for 8.9 – 9.0V VOM reading.
4. Set BAND selector switch (S1) to SW1.
5. Push TUNING (+, –) button for 3.2MHz. Adjust L404 for 1.0 – 1.1V VOM reading.
6. Push the button for 7.3MHz. Adjust CT405 for 8.9 – 9.0V VOM reading.
7. Set BAND selector switch (S1) to SW2.
8. Push TUNING (+, –) button for 9.5MHz. Adjust L406 for 1.0 – 1.1V VOM reading.
9. Push the button for 21.75MHz. Adjust CT404 for 8.9 – 9.0V VOM reading.

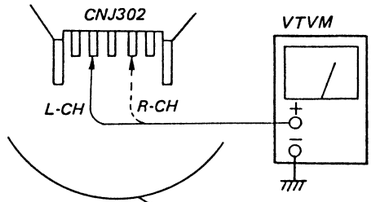
MW Slow Speed Action Level Adjustment

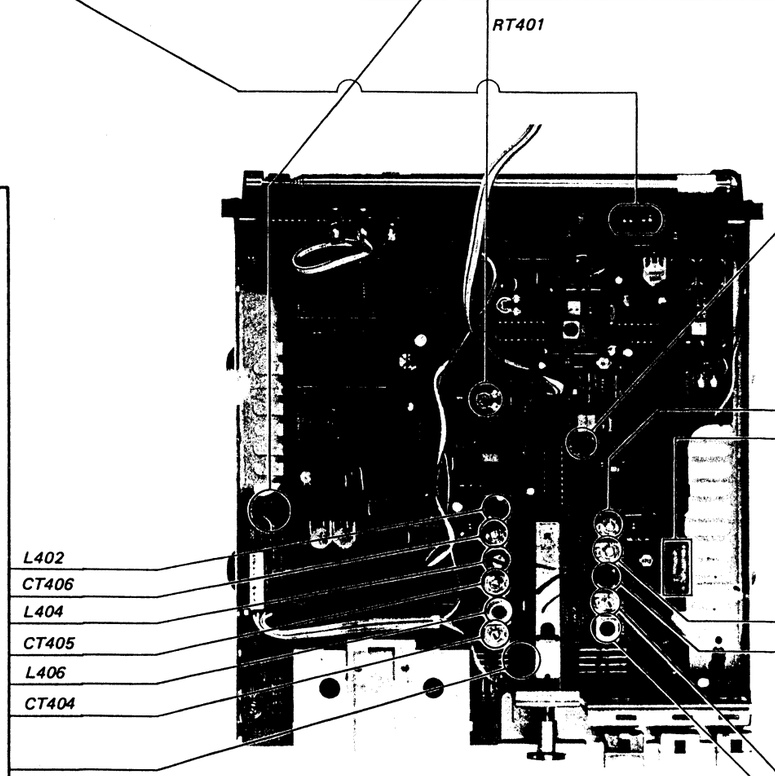
Setting:



Procedure:

1. Set BAND selector switch (S1) to MW. Confirm that the unit is detuned.
2. Adjust RT401 so that the collector voltage of Q605 is 4.0 – 5.0V.





MW IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T401	450kHz

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
CT403	1,404kHz
L401	603kHz

SW1 TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
CT402	6.5MHz
L403	3.5MHz

SW2 TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
CT401	20MHz
L405	10MHz

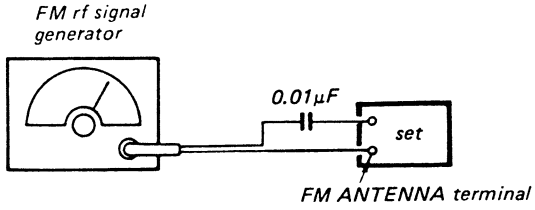
FM SECTION

Setting:

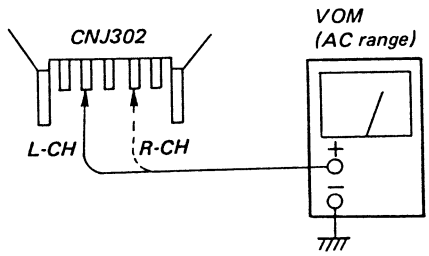
BAND selector switch: FM

FM Tracking Adjustment

Setting:



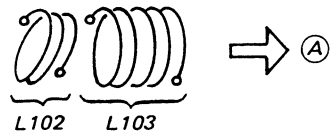
Carrier frequency: 98MHz
Modulation: 1kHz, 75kHz deviation
Output level: 3.16μV (10dB)



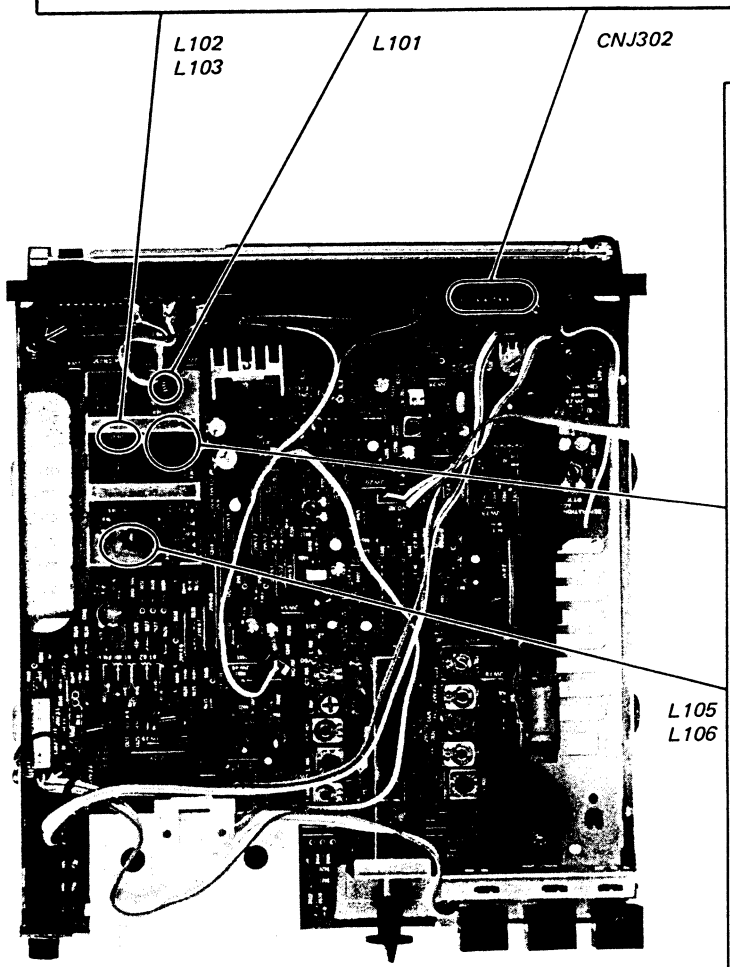
Procedure:

1. Push TUNING (+, –) button for 98MHz.
2. Approach L102 and L103 not to contact each other.
3. Adjust L101 and L103, and repeat the adjustment 2–3 times for maximum VOM reading.

(Adjust L103 in the direction as shown by arrow Ⓐ.)

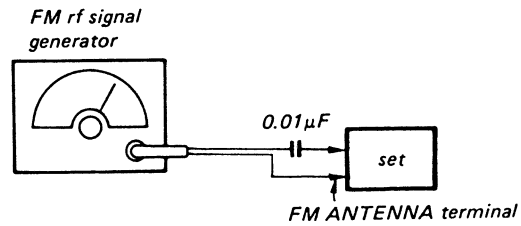


Note: Do not touch L102.

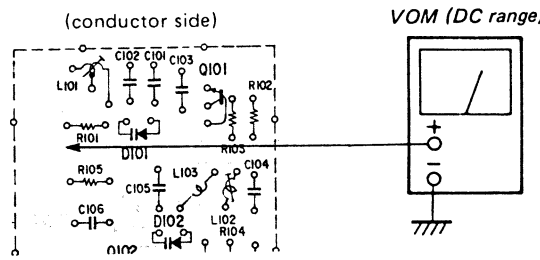


FM OSC Voltage Adjustment

Setting:

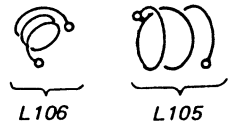


Carrier frequency: 108MHz
Modulation: 1kHz, 75kHz deviation
Output level: 1mV (60dB)



Procedure:

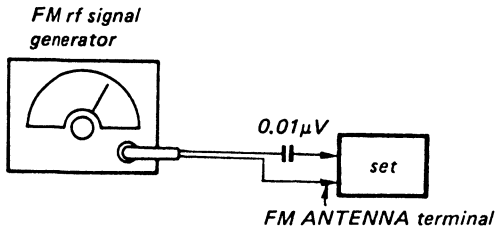
1. Push the TUNING (+, –) button for 108MHz.
2. Adjust L105 for 8.9 – 9V reading on the VOM.



Note:
- *Do not touch L106.*
- *Adjust so that L105 does not approach to L106.*

FM TUNED Indicator Adjustment

Setting:



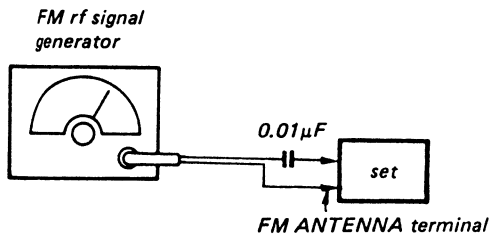
Carrier frequency: 98MHz
Modulation: 1kHz, 75kHz deviation
Output level: 17.8μV (25dB)

Procedure:

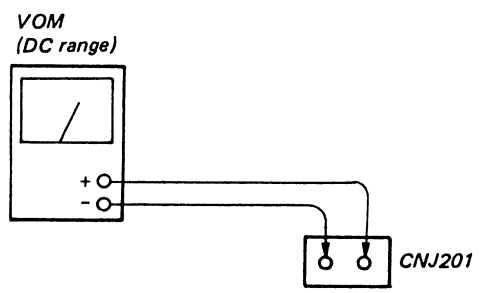
1. Push the TUNING (+, –) button for 98MHz.
2. Adjust RT201 so that the TUNED indicator (D201) lights up.

FM Discriminator Adjustment

Setting:

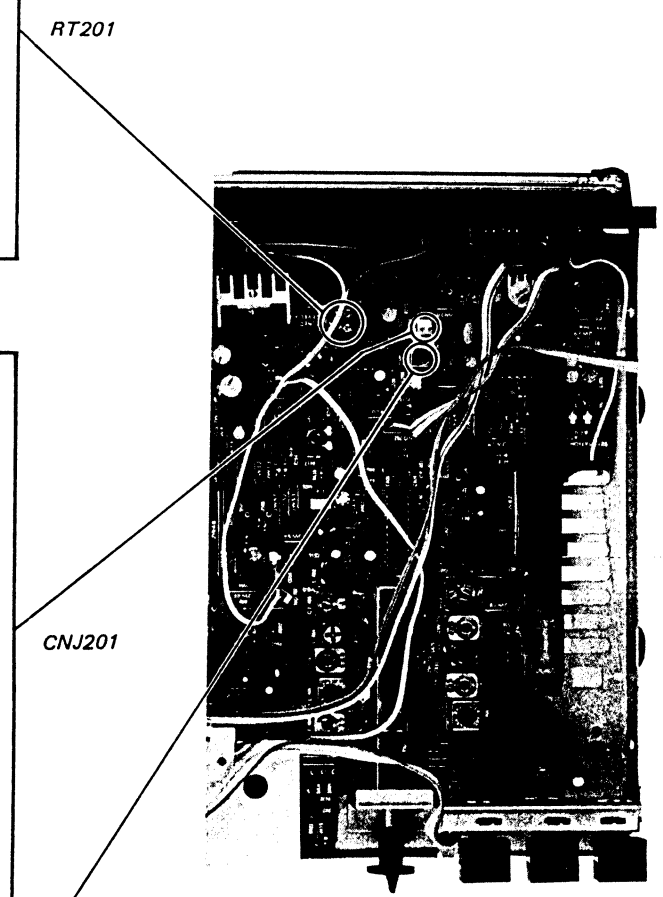


Carrier frequency: 98MHz
Modulation: 1kHz, 75kHz deviation
Output level: 1mV (60dB)



Procedure:

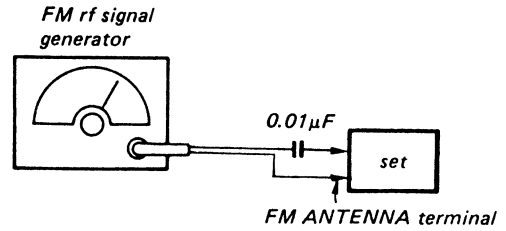
1. Push the TUNING (+, –) button for 98MHz.
2. Adjust T201 for 0V reading on the VOM.



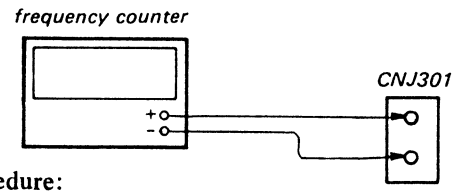
VCO Adjustment

A) Regular Method

Setting:



Carrier frequency: 98MHz
Modulation: no modulation
Output level: 1mV (60dB)



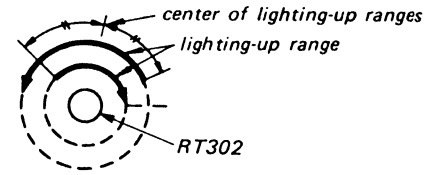
Procedure:

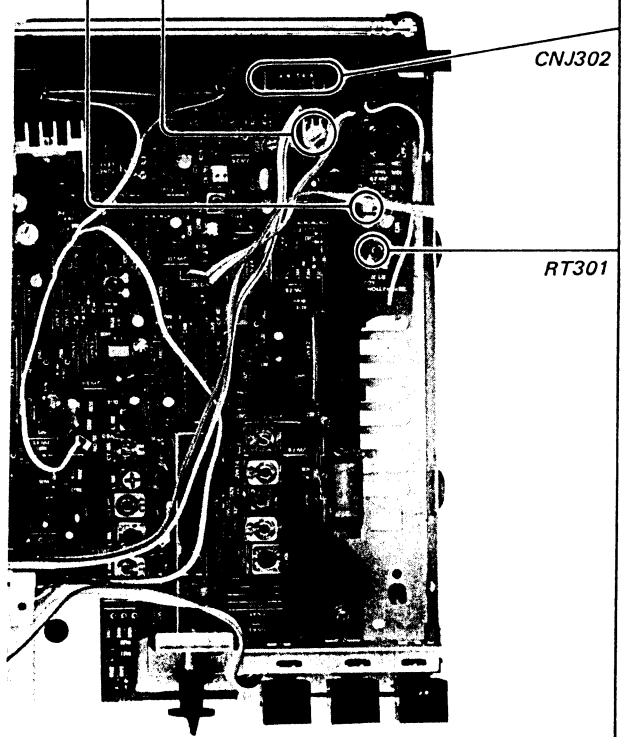
1. Push the TUNING (+, –) button for 98MHz.
2. Adjust RT302 for 19kHz ±50Hz reading on the frequency counter.

B) Simple Method

Procedure:

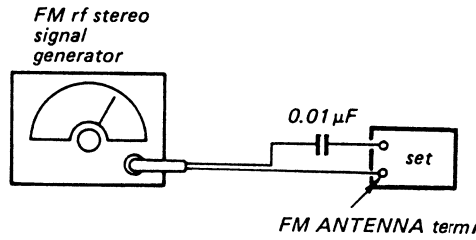
1. Push the TUNING (+, –) button for the FM stereo broadcasting signal.
2. Turn RT302 clockwise or counterclockwise and memorize the lighting-up range of the STEREO indicator (D301).
3. Secure RT302 at the center of the lighting-up range of both turns as shown below.



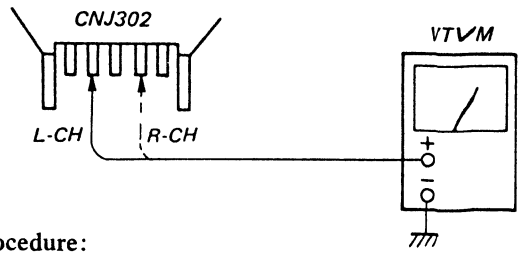


FM Stereo Separation Adjustment

Setting:



Carrier frequency: 98MHz
Modulation: audio (1kHz): 33.75kHz deviation
pilot (19kHz): 7.5kHz deviation
sub-channel (38kHz): 33.75kHz deviation
Output level: 1mV (60dB)
Mode: stereo



Procedure:

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RT301 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RT301 for minimum reading.

3-1. MOUNTING DIAGRAM

See page TA-7 for semiconductor lead layouts.

| | | |

3-1. MOUNTING DIAGRAM
– Conductor Side –

SECTION 3 DIAGRAMS

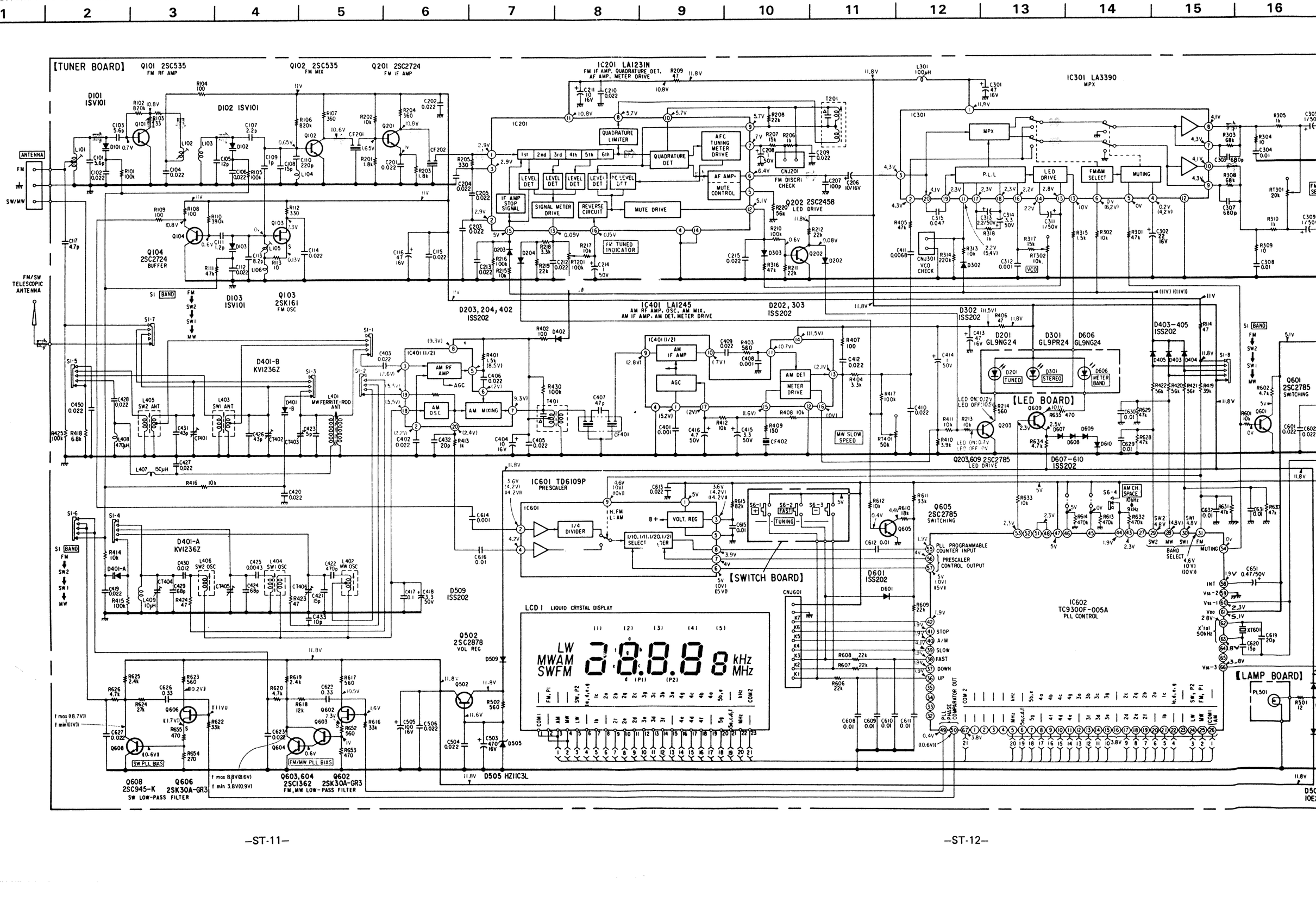
● Refer to page ST-8 for semiconductor lead layouts.

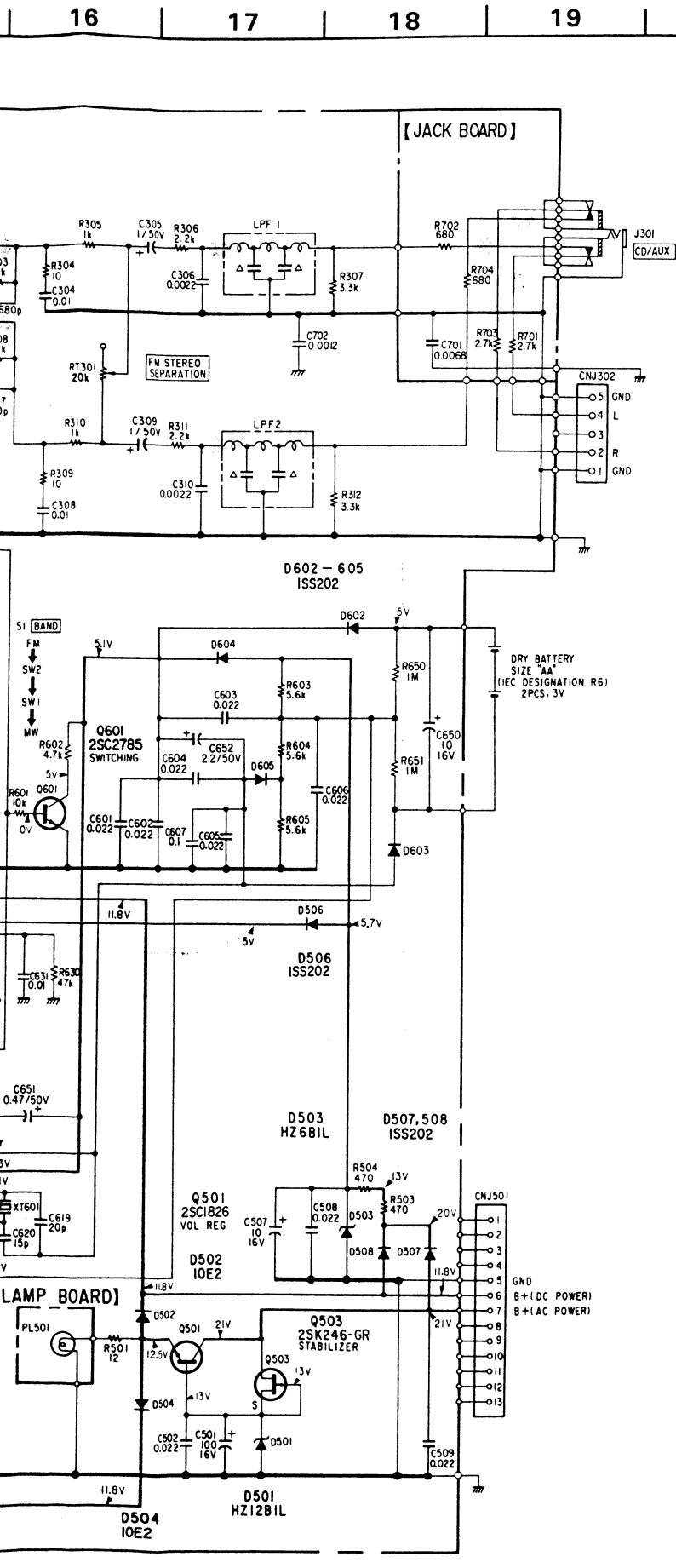
Q , IC	D
	204
	303
202	202, 203
501, 101	
	501
	502, 101
	504
	509, 505
IC301, IC201	
502	
203	
102	102
	302, 606
	201
	301
201, 104	
103	402 103
	508, 507
	609, 608
609	607
IC401	
	610
	503
	506
605	601
608, 604	
601 603	
606 602	
IC601	
	604, 602
	603, 605
	401-A
	401-B
IC602	
	405, 404
	403

Q , IC	D

Note:
- ○— : parts extracted from the component side.
- ■ : part mounted on the conductor side.
- [ ]— : indicates side identified with part number.
- ▬▶ : signal path
- ▬▶ : L-CH signal path
- ▬·▶ : R-CH signal path
- ▒ : B+ pattern

3-2. SCHEMATIC DIAGRAM



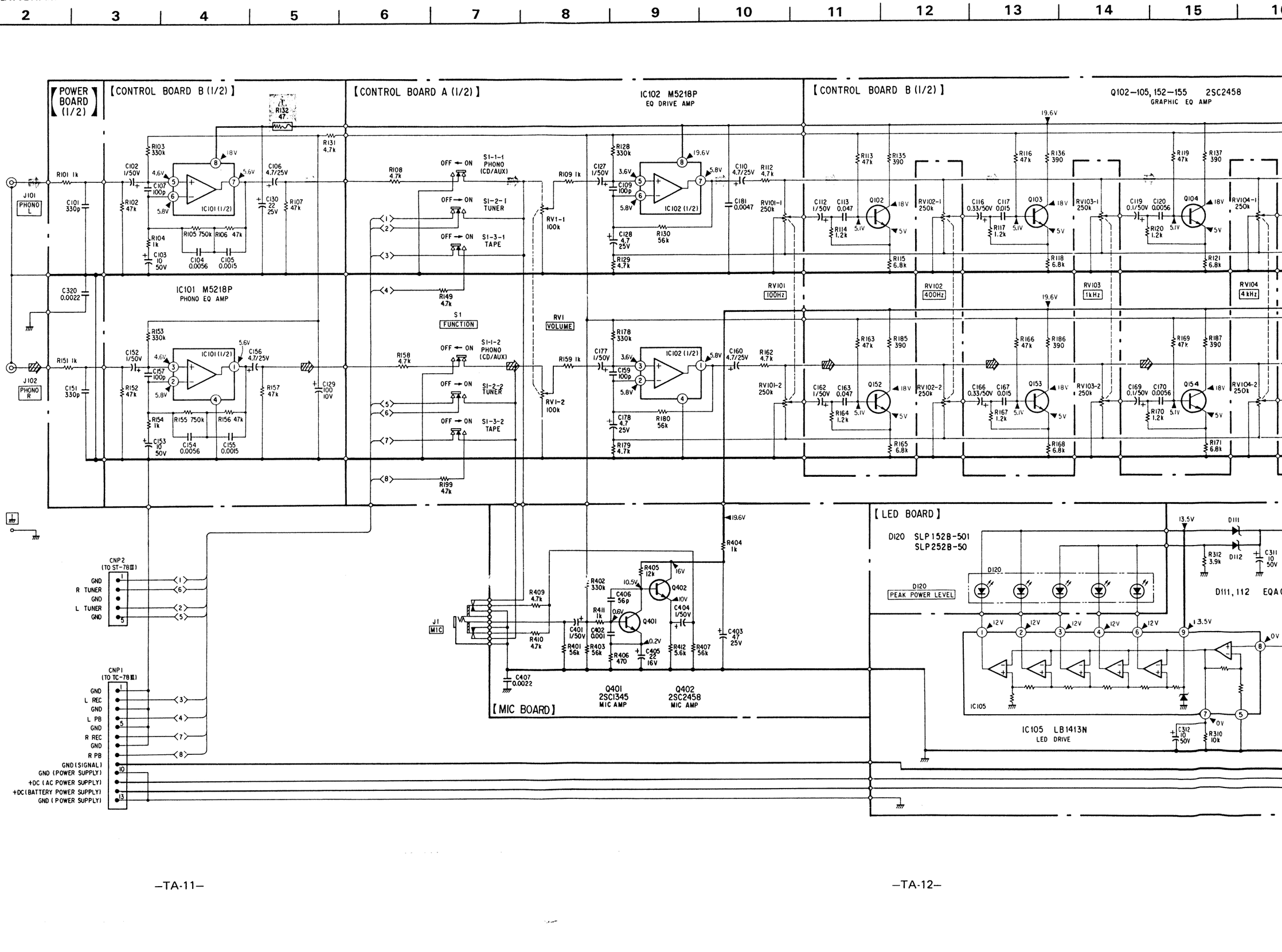


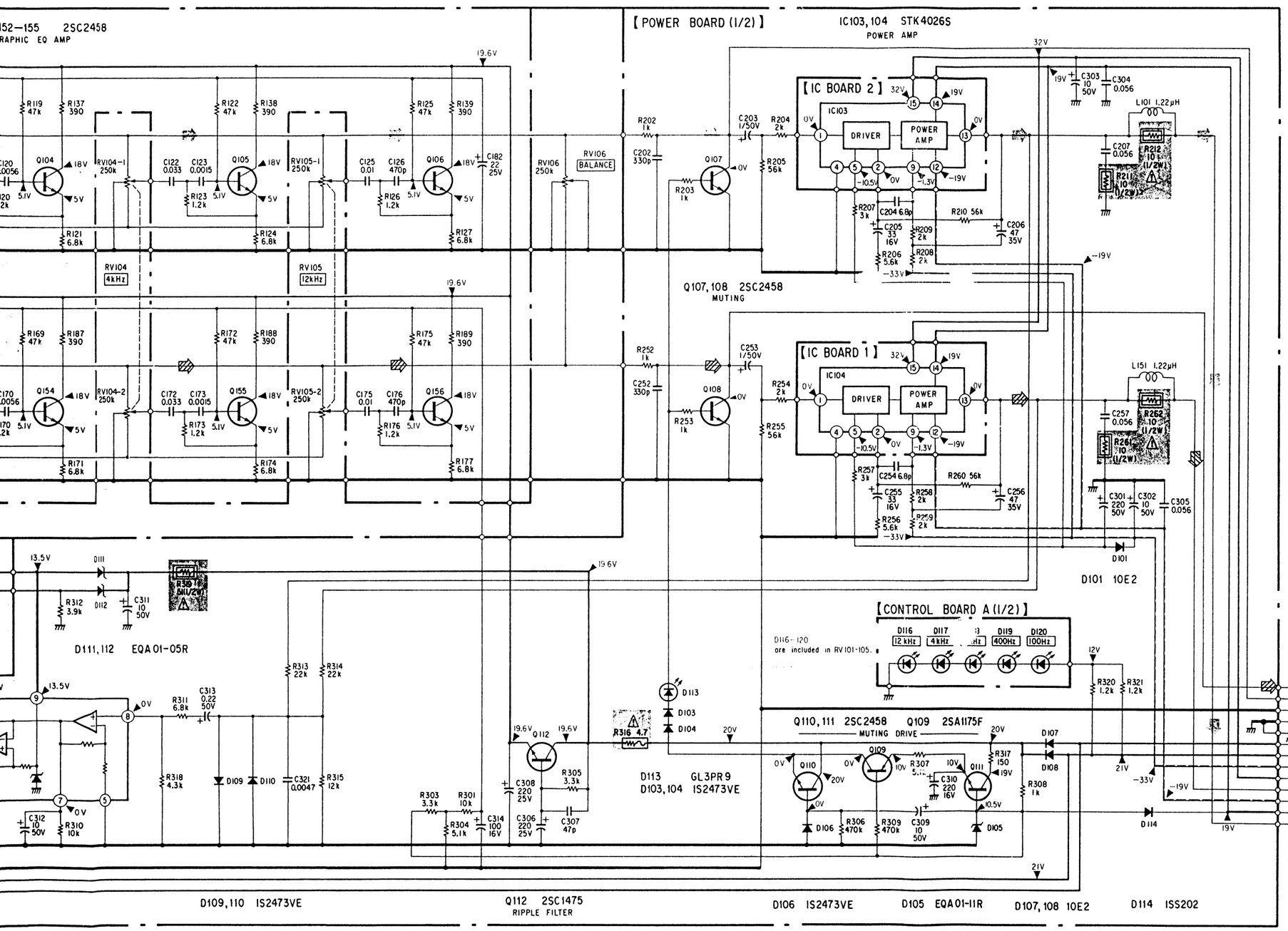
Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼ W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- △ : internal component.
- ▭ : adjustment for repair.
- ——: B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under detuned conditions.
  no mark : FM
  ( ) : MW
  (( )) : SW
- Voltage variations may be noted due to normal production tolerances.
- ⇒ : signal path

Note: Voltages are measured with a VOM (50kΩ/V).

3-2. SCHEMATIC DIAGRAM





Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- : L-CH signal path
- : R-CH signal path
- : nonflammable resistor.
- : fusible resistor.
- : B+ bus.
- : B− bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (50kΩ/V).
- Switch

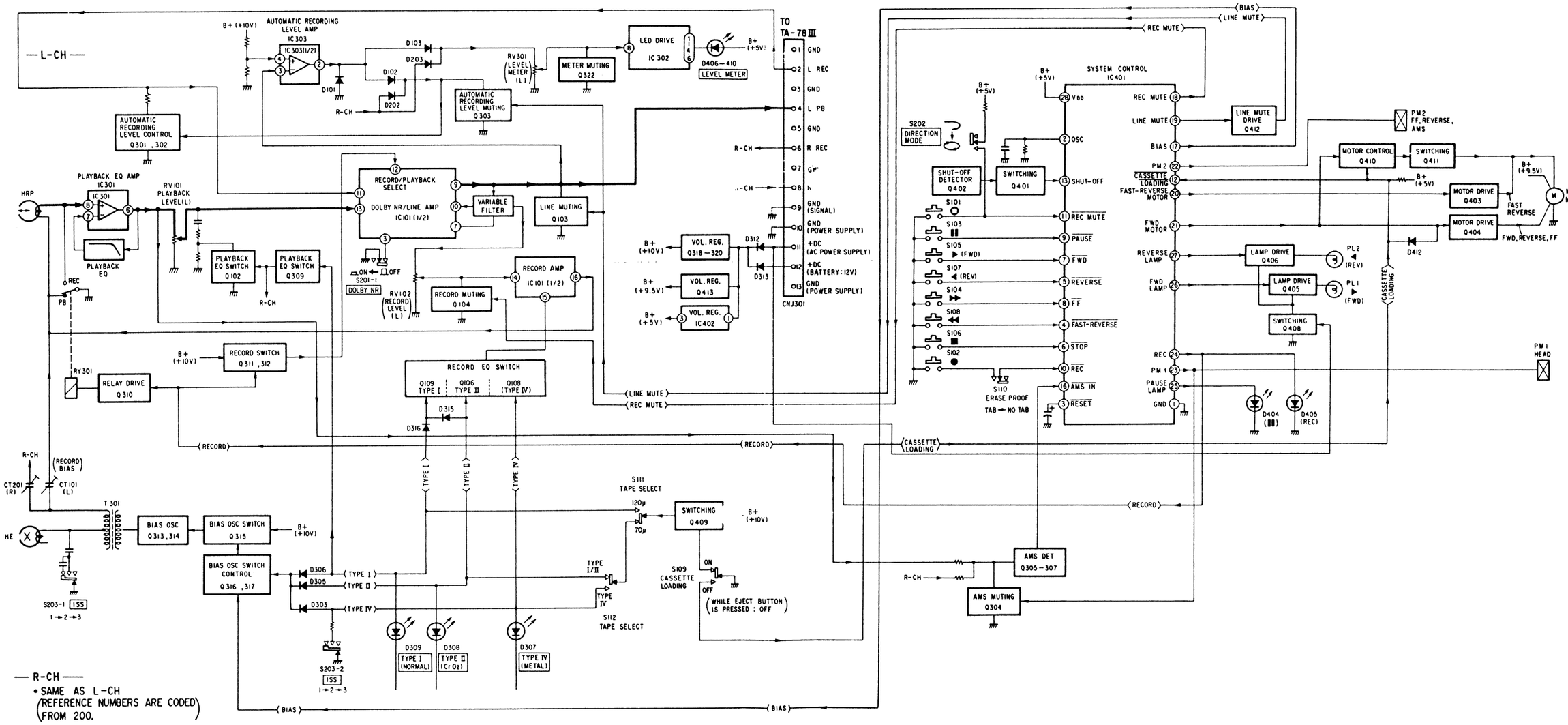
Ref. No.	Switch	Position
S1-1	PHONO (CD/AUX)	ON
S1-2	TUNER	OFF
S1-3	TAPE	OFF

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Voltages are measured with a VOM (50kΩ/V).

FH-7 MK III
TC-78 III

SECTION 2
BLOCK DIAGRAM



SECTION 4
ADJUSTMENTS

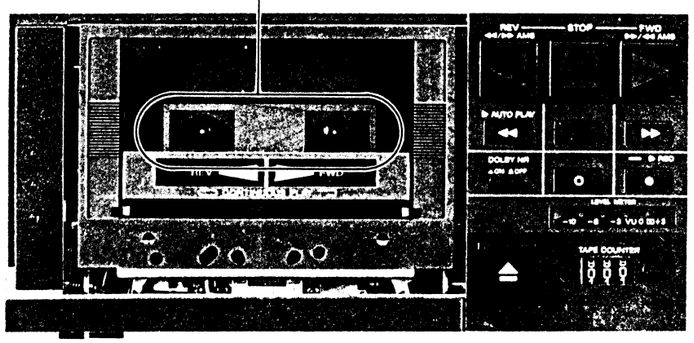
4-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:
   - record/playback head
   - erase head
   - capstan
   - pinch roller
   - rubber belts
   - idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage (dc 2.5V) unless otherwise noted.

Torque Measurement

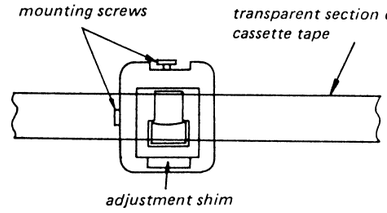
Torque	Torque meter	Meter reading
FWD	CQ-102C	28 – 60 g·cm (0.39 – 0.83 oz·inch)
FWD Back tension	CQ-102C	2 – 8 g·cm (0.03 – 0.1 oz·inch)
REV	CQ-102RB	28 – 60 g.cm (0.39 – 0.83 oz·inch)
REV Back tension	CQ-102RB	2 – 8 g·cm (0.03 – 0.1 oz·inch)
FF, REW	CQ-201B	80 – 165 g·cm (1.1 – 2.28 oz·inch)

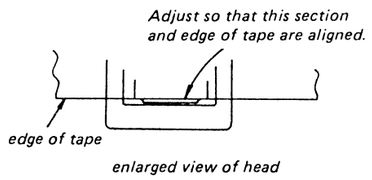


Head Height Adjustment

The following adjustments should be made when the record/playback head is replaced.

1. The head should be made after removing the head pad of the mirror cassette tape.
2. Using the leader section of the mirror cassette tape, adjustments are made by changing the adjusting shim so that the core and the edge of the tape become as shown in the illustration below when the tape is moved across the head.

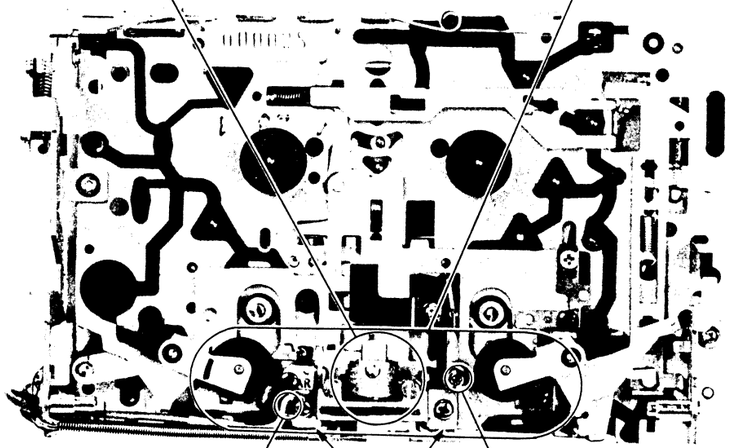




Tape Path Adjustment

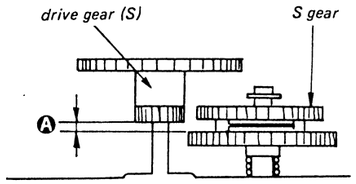
When assembling the erase head and head holder, and when replacing the tape guide (L), be sure to perform the following adjustments.

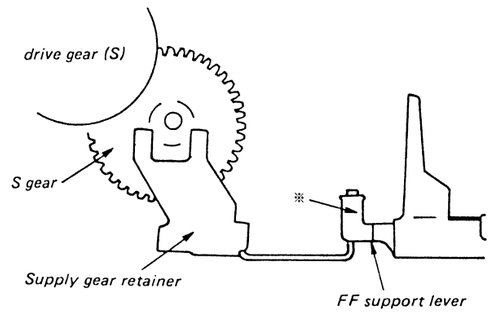
1. Using a mirror cassette, adjust each of the adjustment screws until there is not tape curling.
2. Perform adjustments by changing the height adjustment shim of the head holder assembly and the height adjustment shim of the record/playback head, so that the core of the record/playback head is positioned correctly for both FWD and REV.

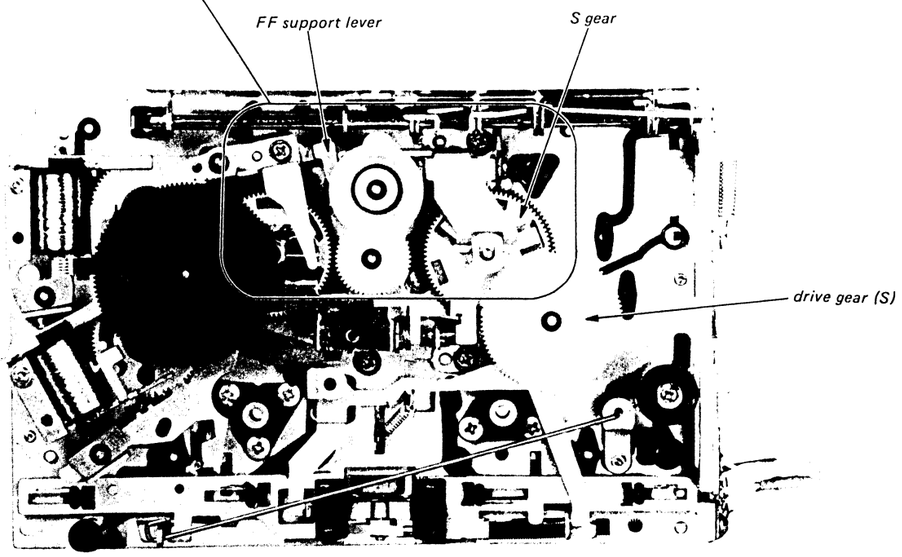


Supply Gear Retainer Position Adjustment

1. With the deck in the REV mode.
2. Bend the FF supplementary lever at the place indicated by the asterik (※) to make adjustments so that the dimension of Ⓐ is 1mm, ±0.5mm.

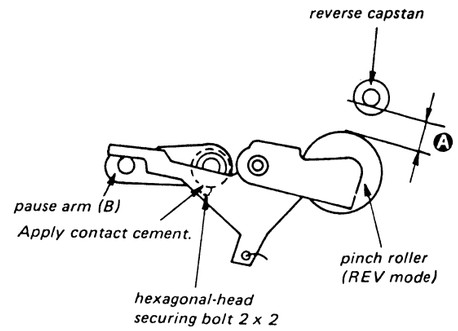


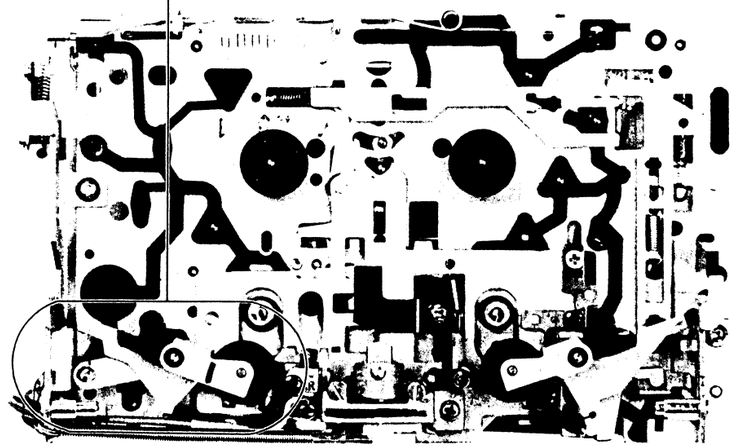




Pause Arm Position Adjustment

1. With the deck in the REV mode.
2. Loosen the hexagonal head securing bolts and adjust the position of the pause arm B so that the dimension of Ⓐ on the right becomes 0.5mm – 1.0mm.
3. After the adjustment, lock the screws with contact cement.

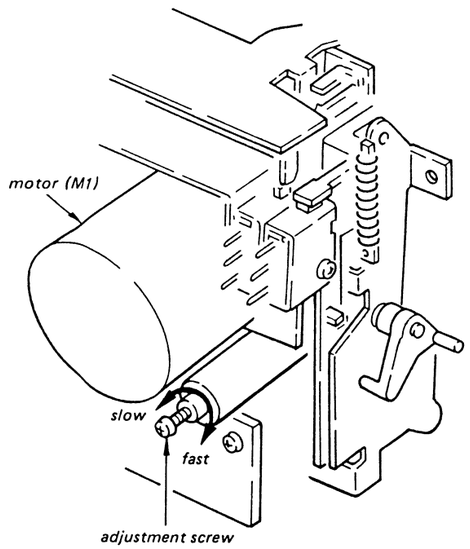




Cassette Holder Opening/Closing Speed Adjustment

1. Insert a CHF-90 or equivalent tape (in terms of weight).
2. Adjust the adjustment screw so that the time required for the cassette holder is 0.4 – 1.0 seconds when the EJECT button is depressed.

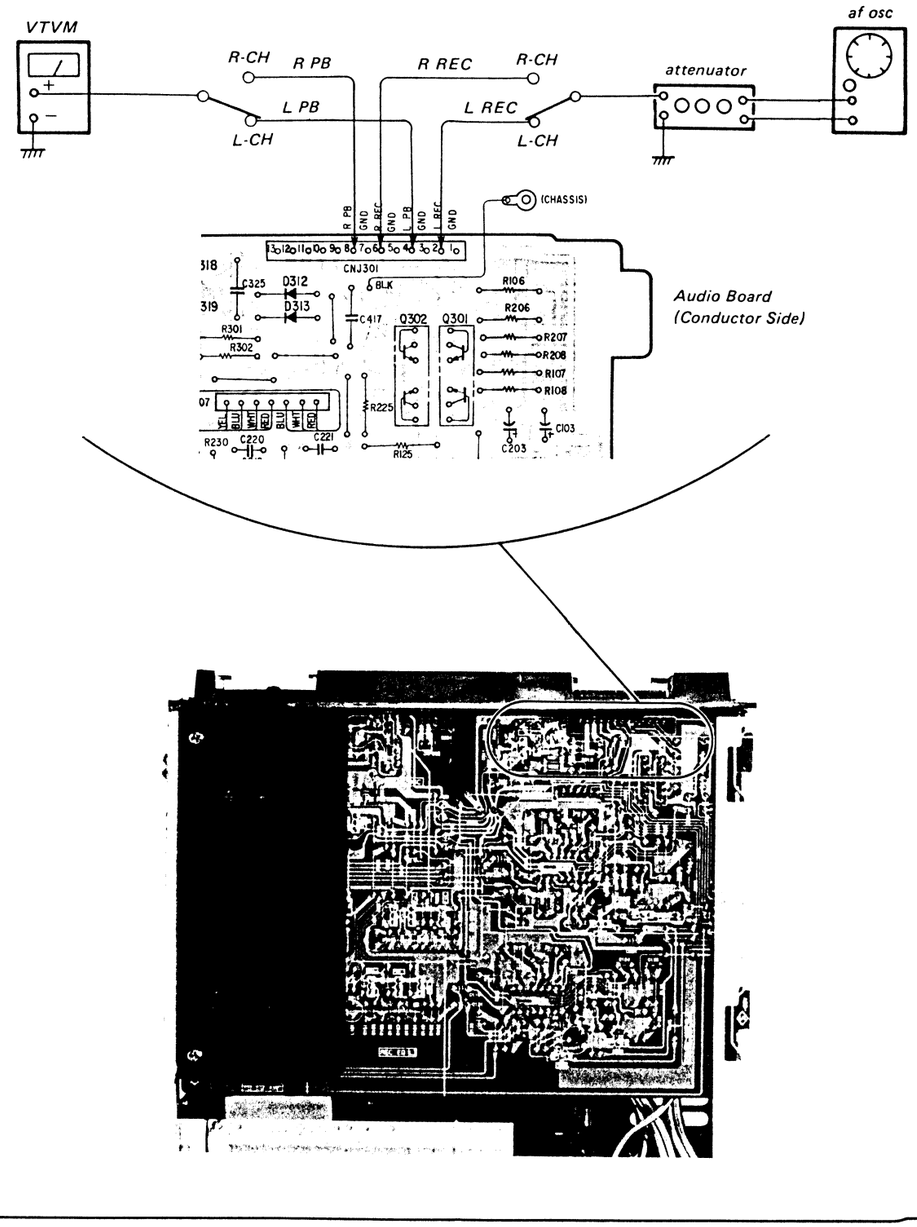
Adjustment Location:



4-2. ELECTRICAL ADJUSTMENTS

Note: The adjustment should be performed in the order given in this service manual. (Playback section may be adjusted earlier than record section.)
The adjustments should be performed for both L-CH and R-CH.

- **Output level check point**
- **Input level check point**



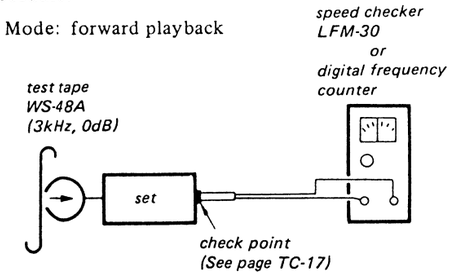
Tape Speed Adjustment

Setting:

DOLBY NR: OFF

Procedure:

Mode: forward playback

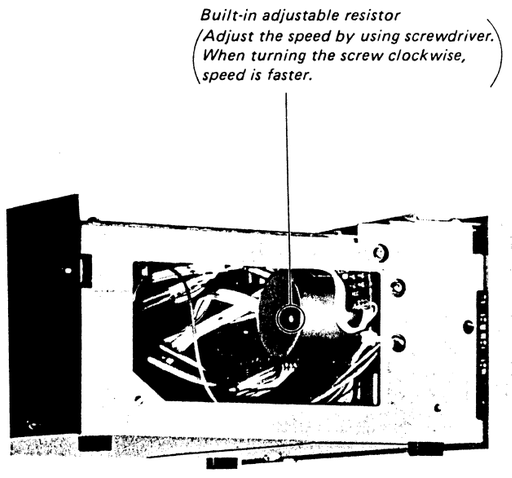


Specifications:

Speed checker	Digital frequency counter
±0.5%	2,985 – 3,015Hz

Frequency difference between the beginning and the end of the tape should be within 1% (30Hz).

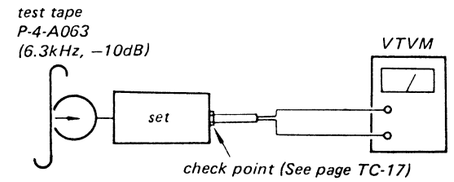
Adjustment Location: Motor (M1)



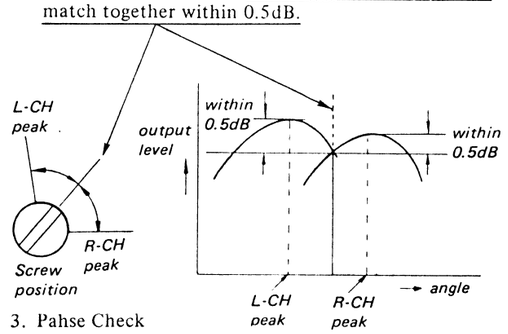
Forward Record/playback Head Azimuth Adjustment

Procedure:

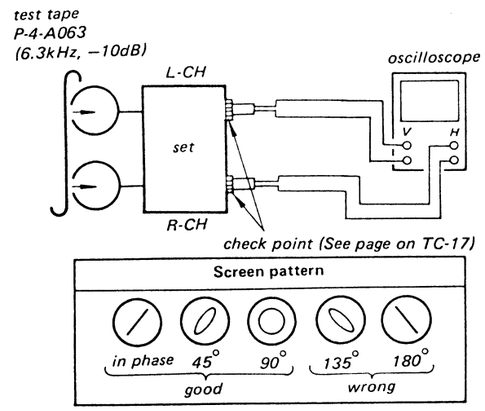
1. Mode: forward playback



2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 0.5dB.

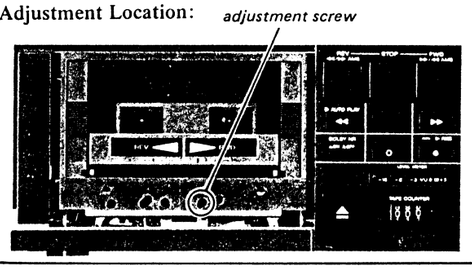


3. Pahse Check
   Mode: forward playback



4. After the adjustment, lock the screws with locking compound.

Adjustment Location:

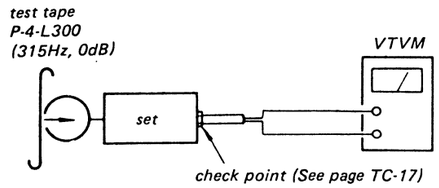


Playback Level Adjustment

Setting.

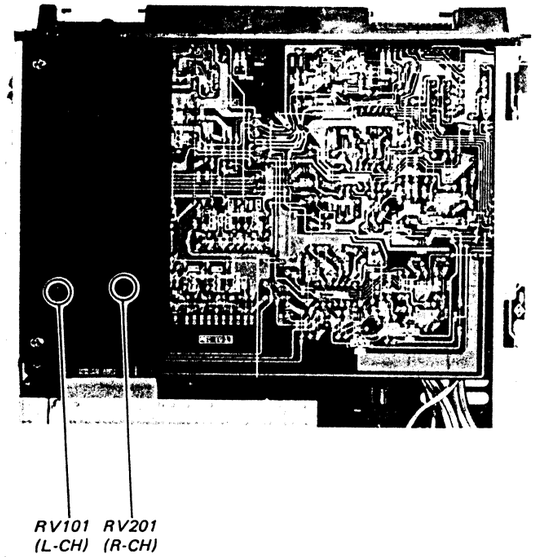
DOLBY NR switch: OFF

Procedure:



Adjust RV101 (L-CH) and RV201 (R-CH) to obtain 0.29 – 0.32V (–7.5 to –8.5dB) on the VTVM.
Check that the Line out level does not change in playback mode while changing the mode from playback to stop several times.

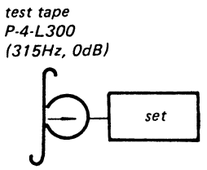
Adjustment Location: Audio Board



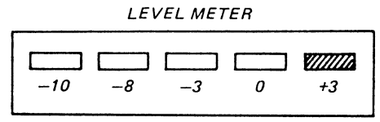
Level Meter Calibration

Proceudre:

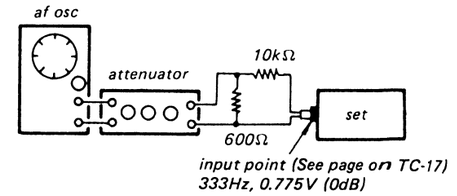
1. Mode: playback



2. Adjust RV301 so that the most-rightside segment (+3dB) of the LED meter goes on and again turn it in the reverse direction until the segment just goes off.

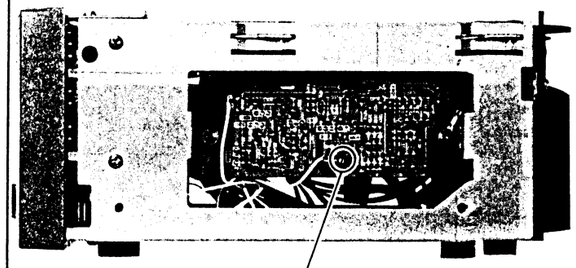


3. Mode: record



Make sure that all LEDs of level meter go on.

Adjustment Location: Audio Board



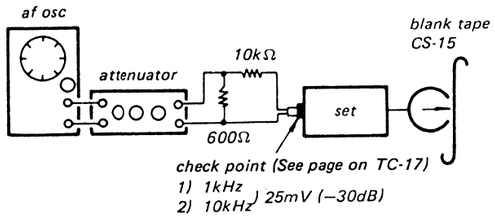
Record Bias Adjustment

Setting:

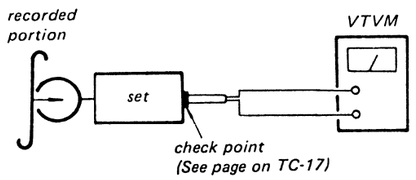
DOLBY NR switch:	OFF
ISS switch:	1

Procedure:

1. Mode: record

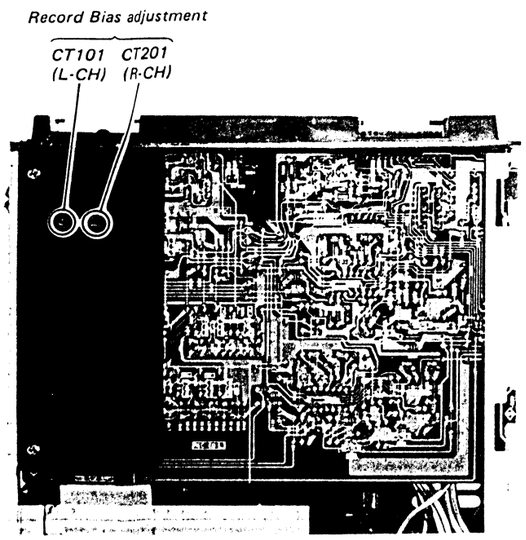


2. Mode: playback



Adjust CT101 (L-CH), CT201 (R-CH) so that the measurement point level of 10kHz signal in 0dB relative to that of 1kHz.

Adjustment Location: audio board .



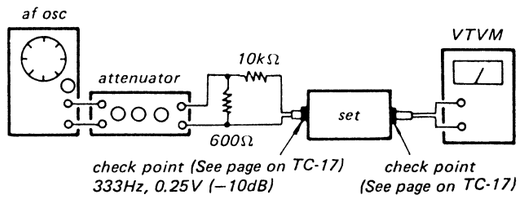
Record Level Adjustment

Setting:

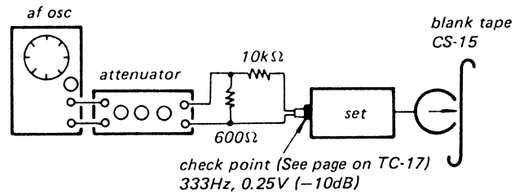
DOLBY NR switch:	OFF
ISS switch:	1

Procedure:

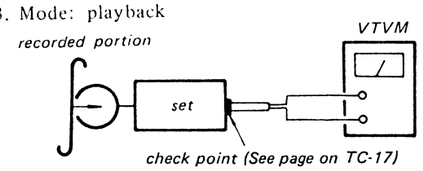
1. Mode: record



2. Mode: record

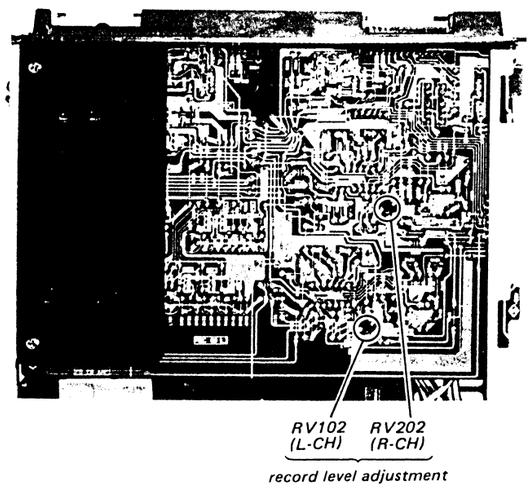


3. Mode: playback



4. Adjust RV102 (L-CH) and RV202 (R-CH) so that playback output level of step 3 is 0 ±0.5dB relative to that of step 1.

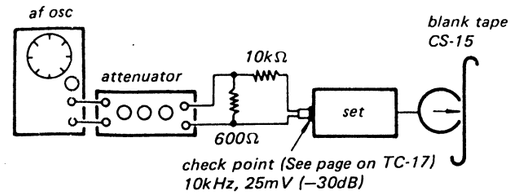
Adjustment Location: audio board



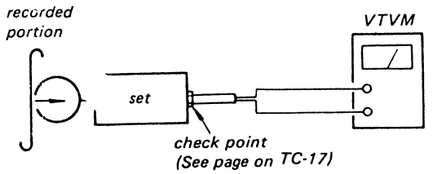
Reverse Playback Head Azimuth Adjustment

Procedure:

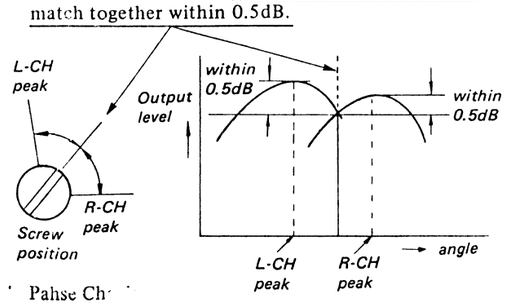
1. Mode: record



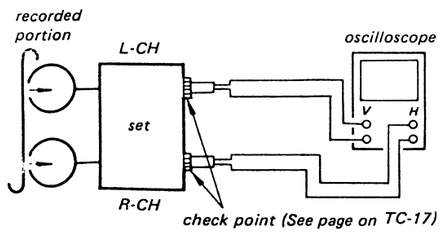
2. Mode: reverse playback

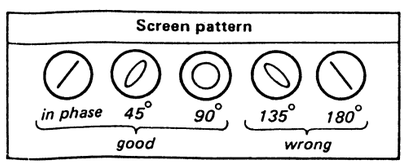


3. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 0.5dB.



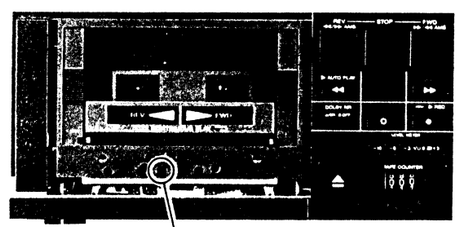
Pahse Ch
Mode: reverse playback





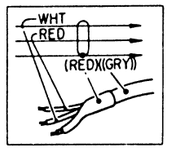
5. After the adjustment, lock the screws with locking compound.

Adjustment Location:

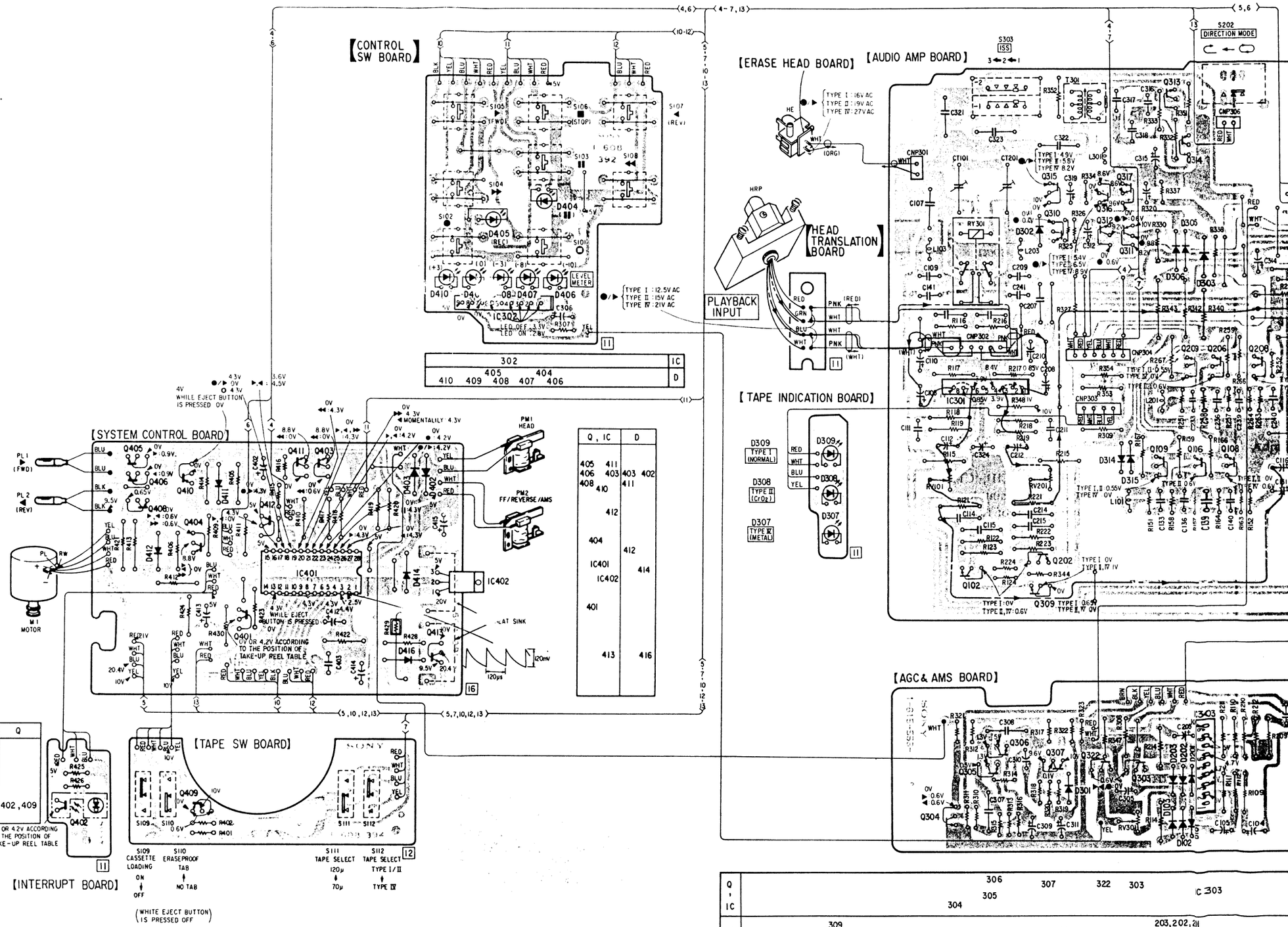


Note:

- Color code of sleeving over the end of the jacket.



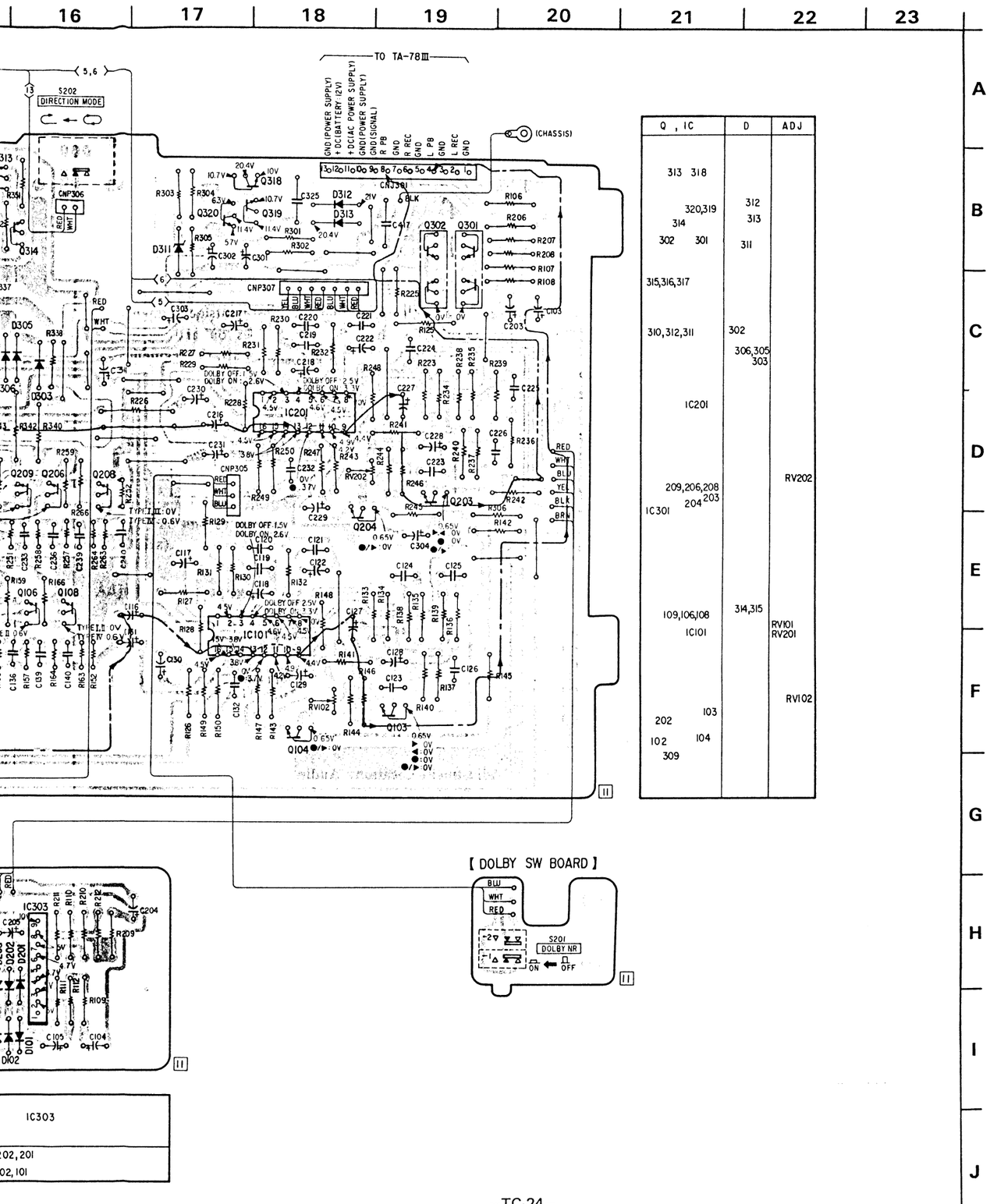
- ○— : parts extracted from the component side.
- —● : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- : B + pattern
- : signal path
- : L-CH signal path
- : R-CH signal path



Q, IC	D
405 411	
406 403 403 402	
408 411	
410	
412	
404 412	
IC401 414	
IC402	
401	
413	416

Q, IC	D
302	IC
405 404	D
410 409 408 407 406	

Q, IC	D
306 307 322 303	
305 IC303	
304	
309	203,202,201
308 301	103,102,101
307	

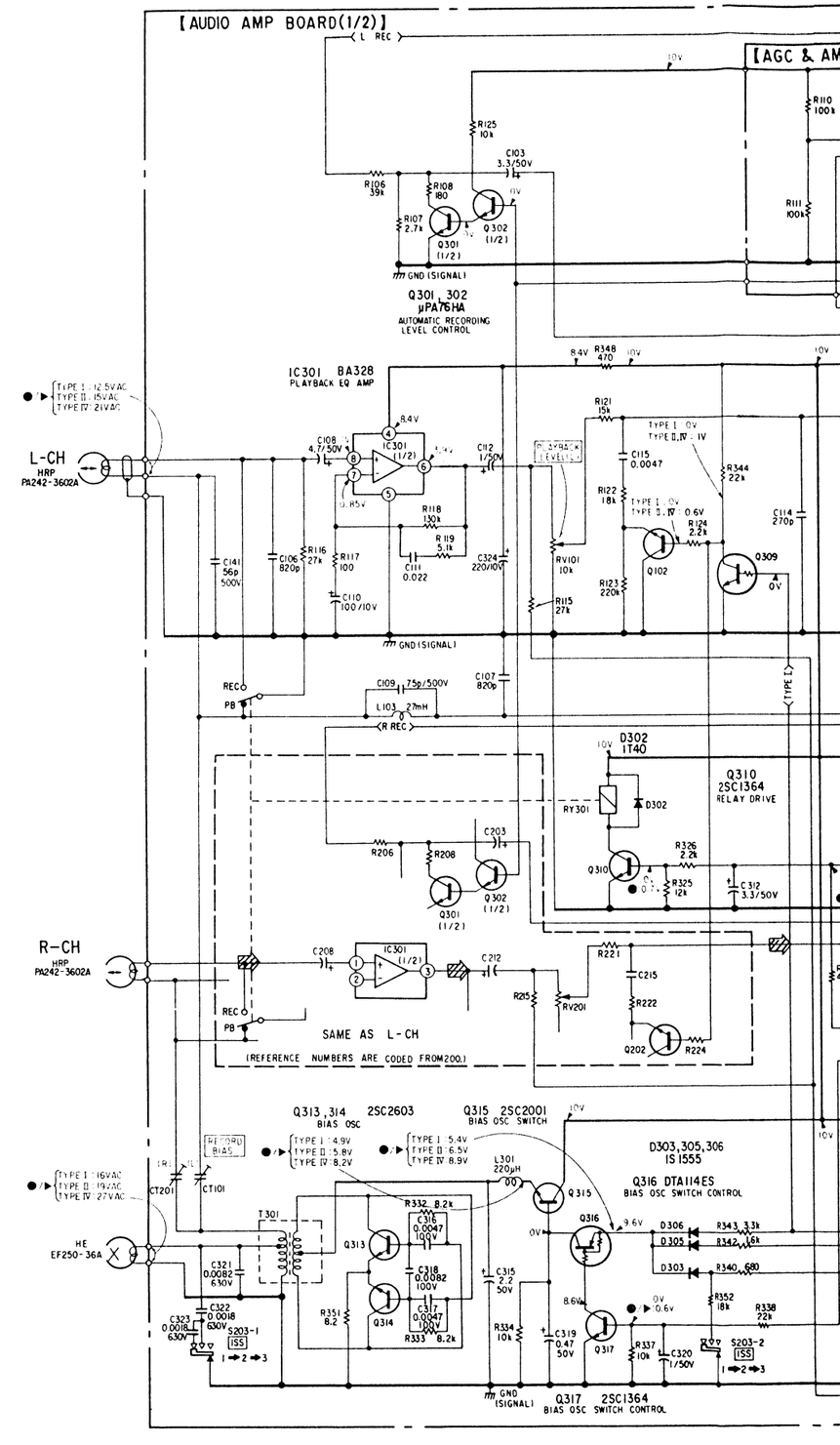


Q , IC	D	ADJ
313 318		
320,319	312	
314	313	
302 301	311	
315,316,317		
310,312,311	302	
	306,305 303	
IC201		
209,206,208 204 203 IC301		RV202
109,106,108 IC101	314,315	RV101 RV201
202	103	RV102
102	104	
309		

IC303
202,201
202,101

4-2. SCHEMATIC DIAGRAM
— AUDIO AMP SECTION —

• See page TC-30 for Notes.



FH-7 MK III
TC-78 III

8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

A B C D E F G H I J

AMS BOARD (1/3)

IC303 NJM 4558S AUTOMATIC RECORDING LEVEL AMP

D101-103, 201-203 1T40

Q303 2SC1364 AUTOMATIC RECORDING LEVEL MUTING

Q322 2SC1364 METER MUTING

CONTROL SW BOARD (1/3)

LEVEL METER

D406-410 SLP2518

IC302 LB1403 LED DRIVE

LED OFF: 3.3V LED ON: 2.8V

TO SYSTEM CONTROL BOARD

GND (POWER SUPPLY)

Q102, 202 2SC1364 PLAYBACK EQ SWITCH

Q309 DTC124ES PLAYBACK EQ SWITCH

Q311 Q312 DTA114ES DTC143TS — RECORD SWITCH —

DOLBY SW BOARD (1/2)

IC101, 201 (1/2) CX174A DOLBY/LINE AMP/RECORD AMP

Q103, 203 2SC2001 LINE MUTING

Q104, 204 2SC1364 RECORD MUTING

IC101, 201 (1/2) CX174A

D314, 0315 1T40

Q106, 108, 109 2SC1364
Q206, 208, 209 2SC1364
RECORD EQ SWITCH

SAME AS L-CH (REFERENCE NUMBERS ARE CODED FROM 200.)

AGC & AMS BOARD (1/3)

IC201 (1/2)

TAPE SW BOARD (1/2)

Q409 2SA1026 SWITCHING

TAPE INDICATION BOARD

D307-309 SLR34PC5

Q304, 2SC1364 AMS MUTING

Q305, 306 2SC1364 AMS DET

Q307 2SA1026 AMS DET

D301 1T40

Q318 2SD809 Q319, 320 2SC1364 VOL. REC

D312, 313 10E2

D311 HZ6B2L

CNJ301

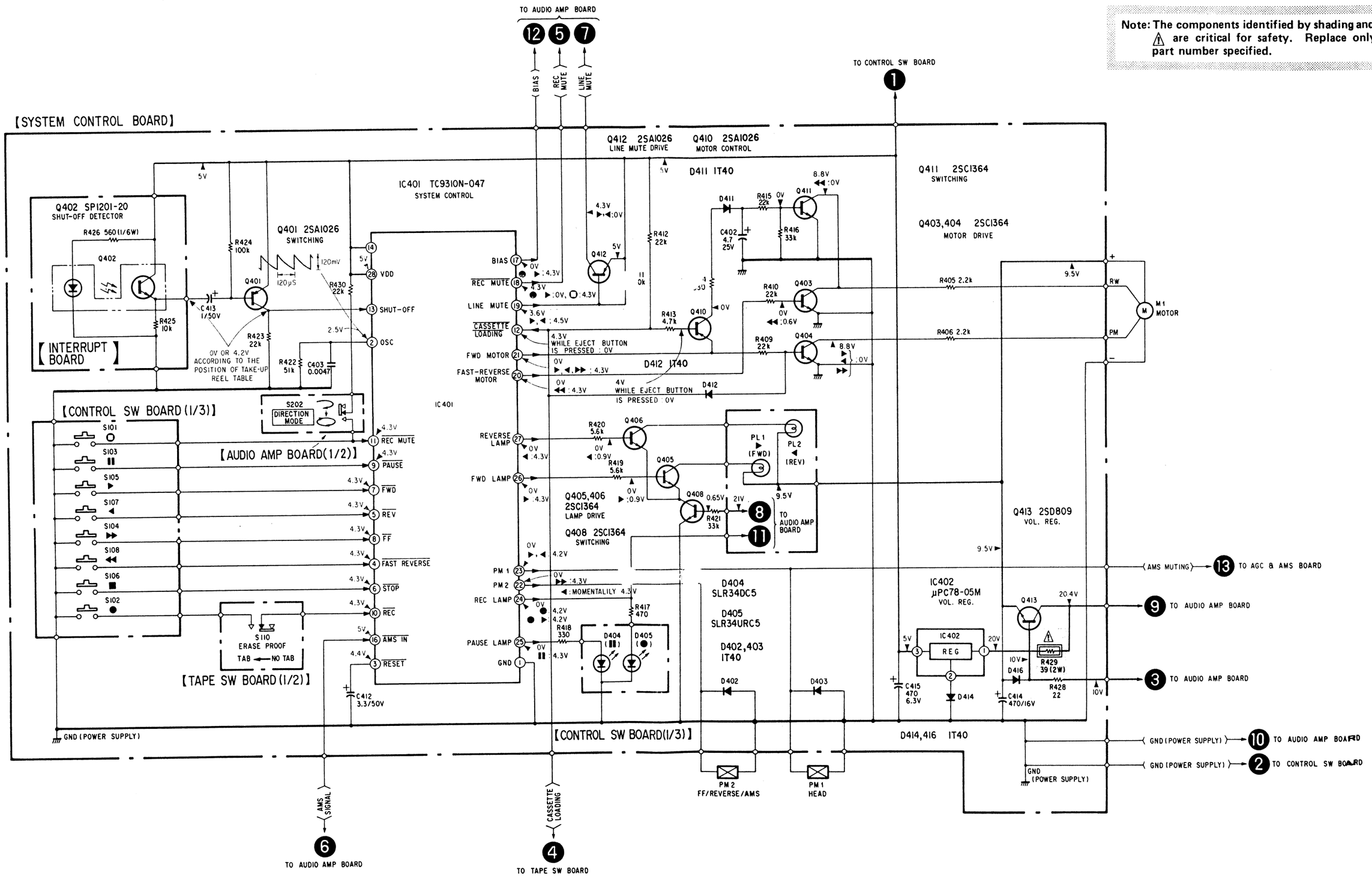
GND
L REC
GND
L PB
GND
R REC
GND
R PB
GND (SIGNAL)
GND (POWER SUPPLY)
+DC (AC POWER SUPPLY)
+DC (BATTERY: 12V)
GND (POWER SUPPLY)

TO TA-78

TO SYSTEM CONTROL BOARD

CASSETTE LOADING
LINE MUTE
REC MUTE
AMS SIGNAL
AMS MUTE

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.



16

nd mark
nly with

A

B

C

D

E

F

G

H

I

J

NOTE FOR SCHEMATIC DIAGRAM
– Audio Amp Section –

Note:

- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- ▭ : adjustment for repair.
- ——: B+ bus.
- Readings are taken under no-signal conditions.

No mark: STOP
▶ : FWD
◀ : REV
▶▶ : FF
◀◀ : FAST-REVERSE
● : REC
●/▶ : REC/FWD
O : REC MUTE
II : PAUSE

- ⇨ : L-CH signal path
- ▨ : R-CH signal path
- Switch

Ref. No.	Switch	Position
S109	CASSETTE LOADING	ON
S111	TAPE SELECTOR	70μ
S112	TAPE SELECTOR	TYPE I/II
S201	DOLBY NR	⊓ OFF
S203	ISS	1

– System Control Section –

Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- ⊣W⊢ : nonflammable resistor.
- ——: B+ bus.
- Readings are taken under no-signal conditions.

No mark: STOP
▶ : FWD
◀ : REV
▶▶ : FF
◀◀ : FAST-REVERSE
● : REC
●/▶ : REC/FWD
O : REC MUTE
II : PAUSE

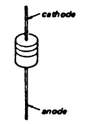
- Switch

Ref. No.	Switch	Position
S101	O (REC MUTE)	OFF
S102	● (REC)	OFF
S103	II (PAUSE)	OFF
S104	▶▶ (FF)	OFF
S105	▶ (FWD)	OFF
S106	■ (STOP)	OFF
S107	◀ (REV)	OFF
S108	◀◀ (FAST-REVERSE)	OFF
S110	ACCIDENTAL-ERASURE PREVENTION	NO TAB
S202	DIRECTION MODE	⮐

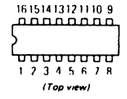
Note: Voltages are measured with a VOM (50kΩ/V).

SEMICONDUCTOR LEAD LAYOUTS

1SS202-1

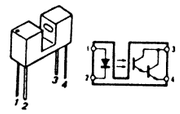


CX174-2

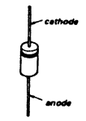


2SC1364
2SC2001

SPI201-20



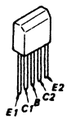
10E-2



BA328

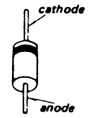
2SC2603F
DTA114ES
DTC124ES
DTC143TS

μPA76HA-F

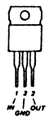


BA715
LB1403

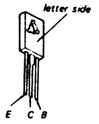
1S1555
HZ6B2L



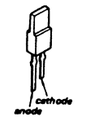
μPC78M05H



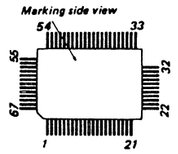
2SD809-K
2SD862



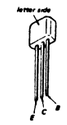
SLP251B



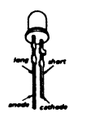
TC9310N-047



2SA1175
2SD1020



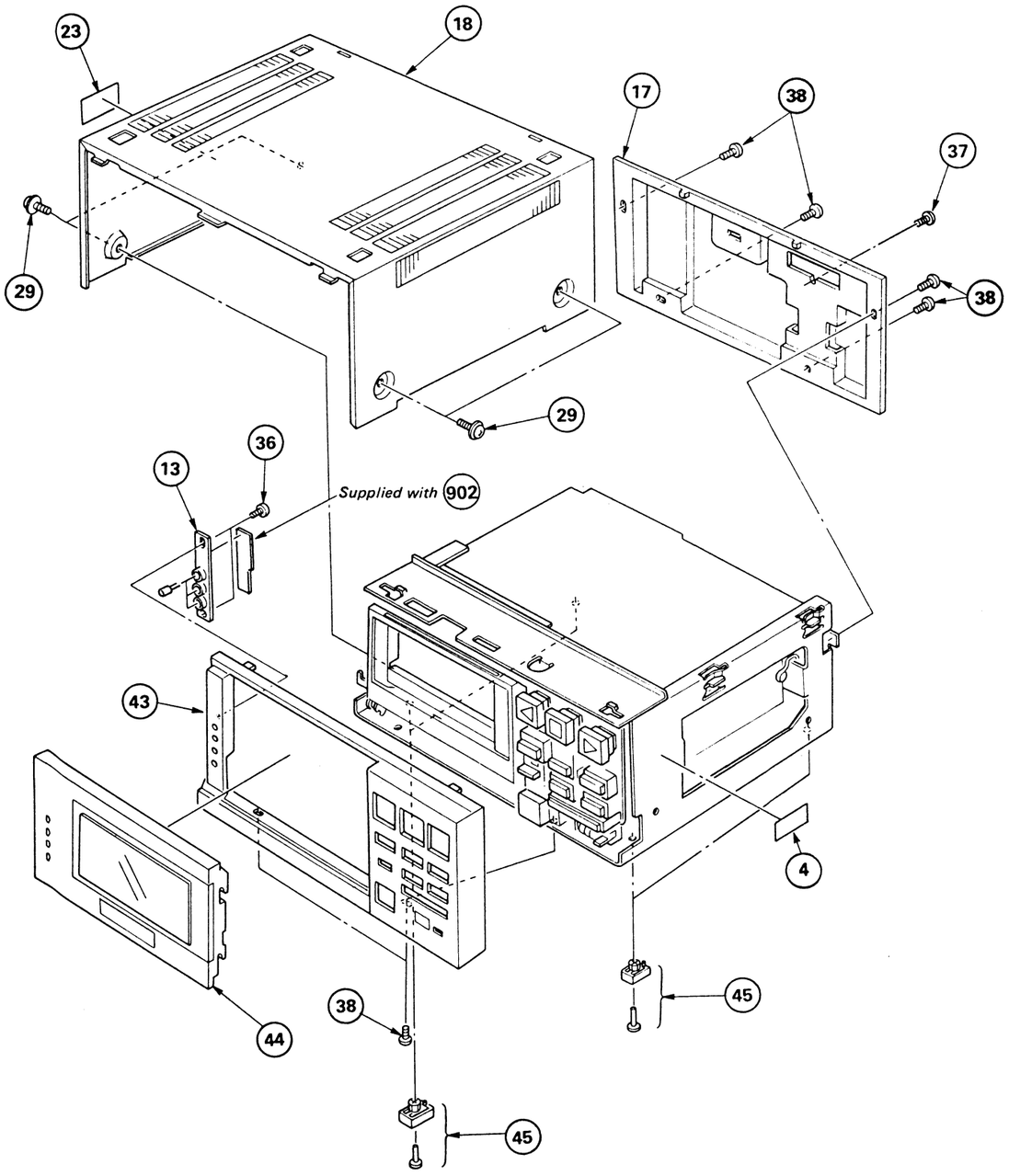
SLR-34DC5
SLR-34PC5



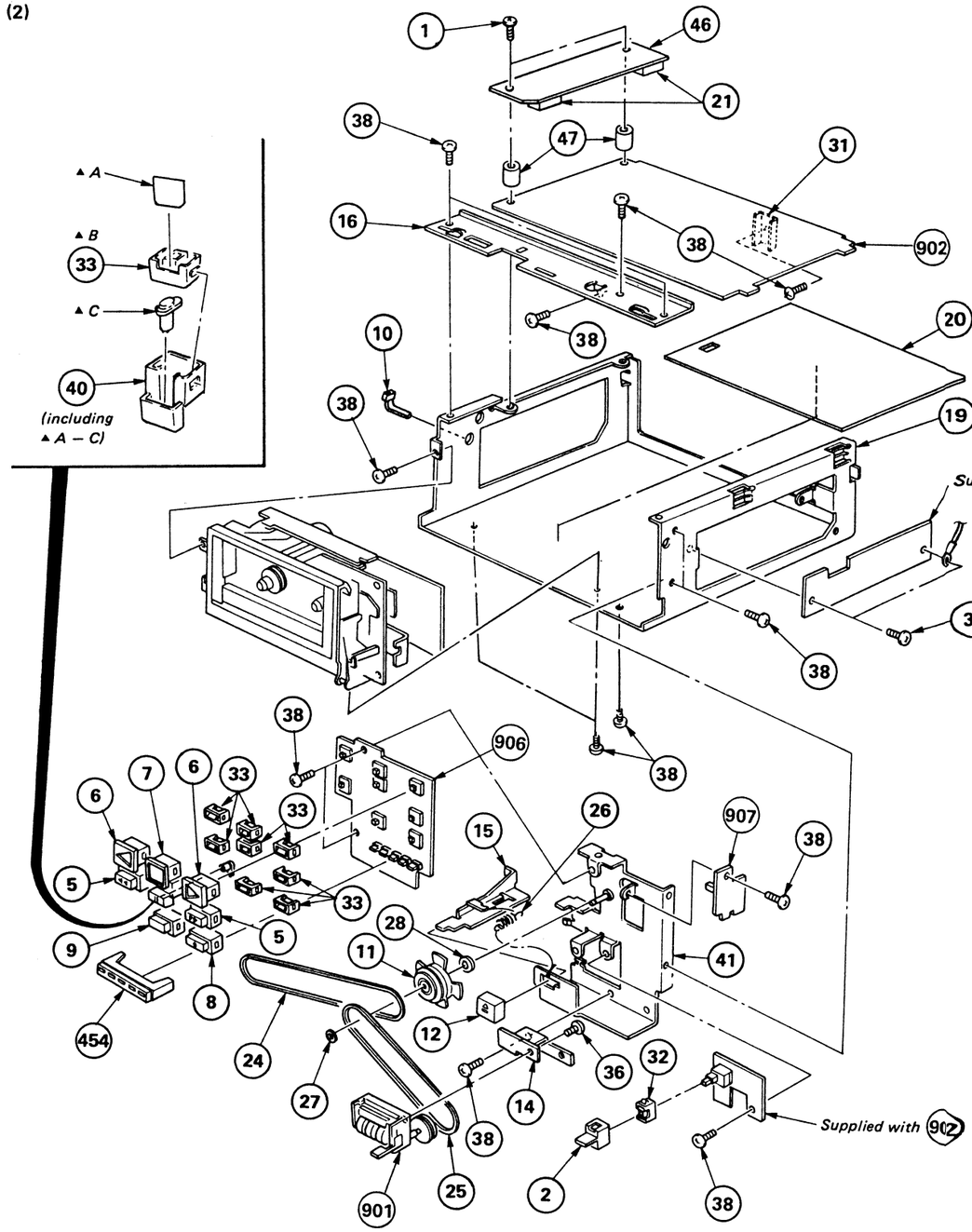
SECTION 5
EXPLODED VIEWS AND PARTS LIST

5-1. EXPLODED VIEWS

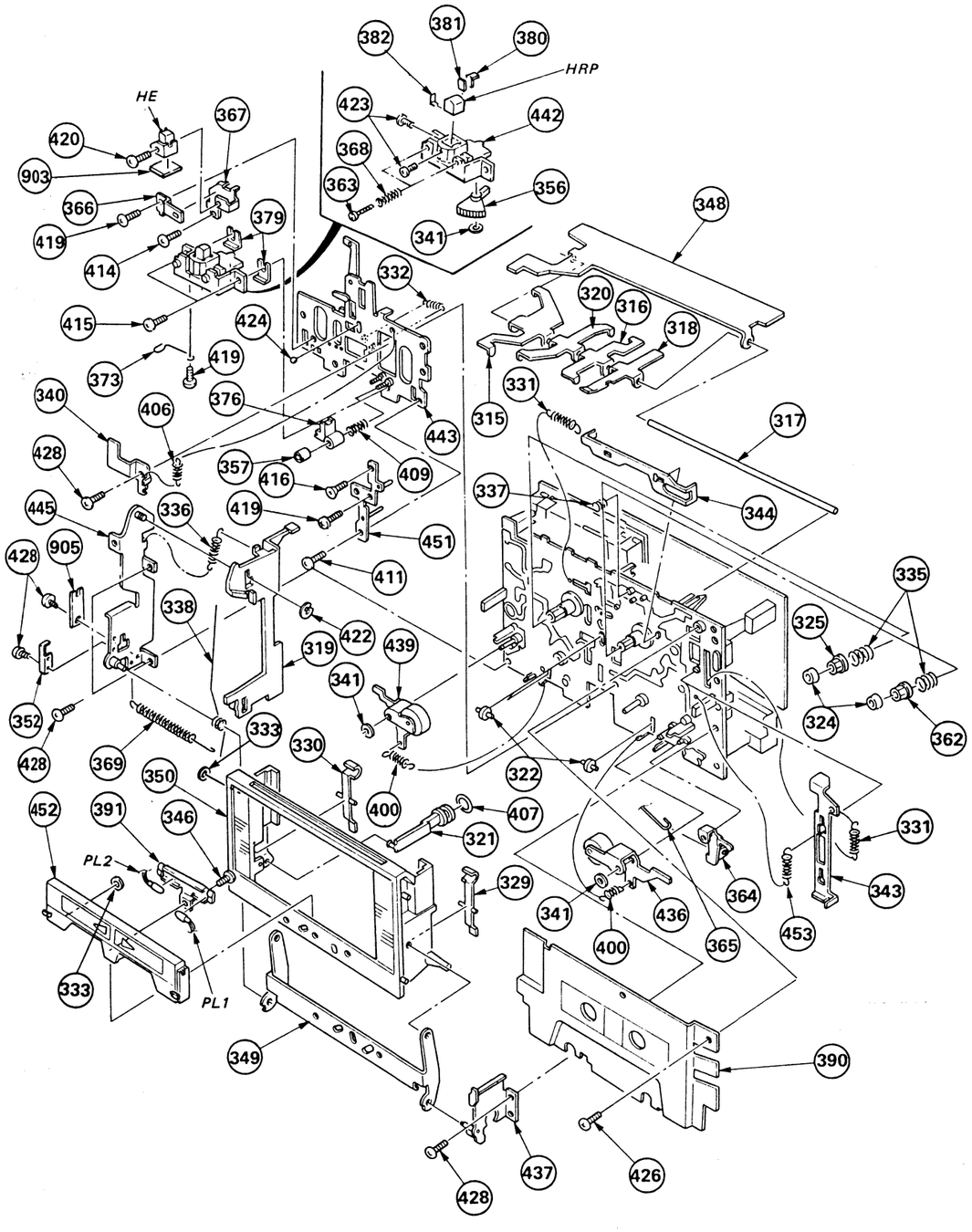
(1)



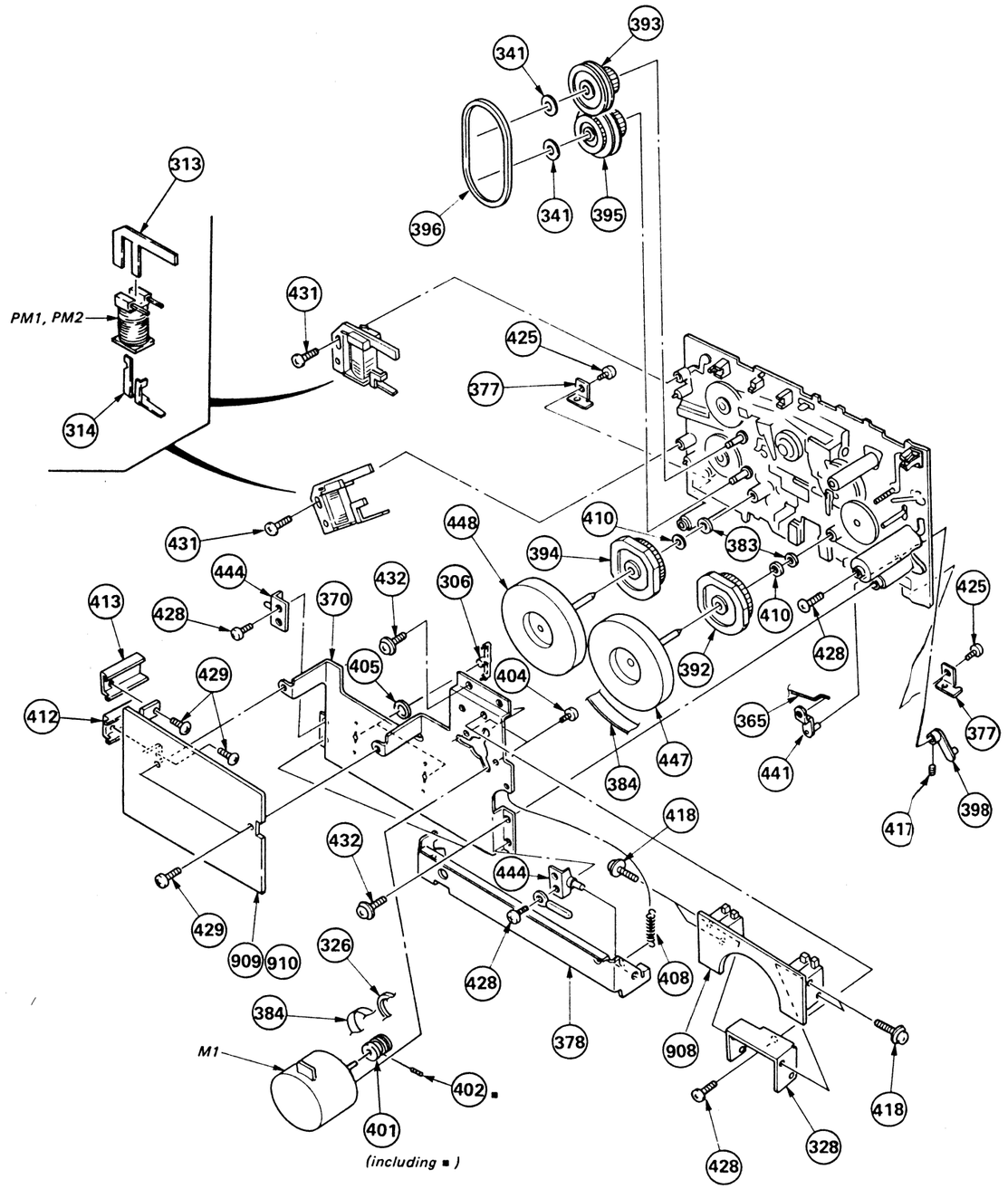
(2)

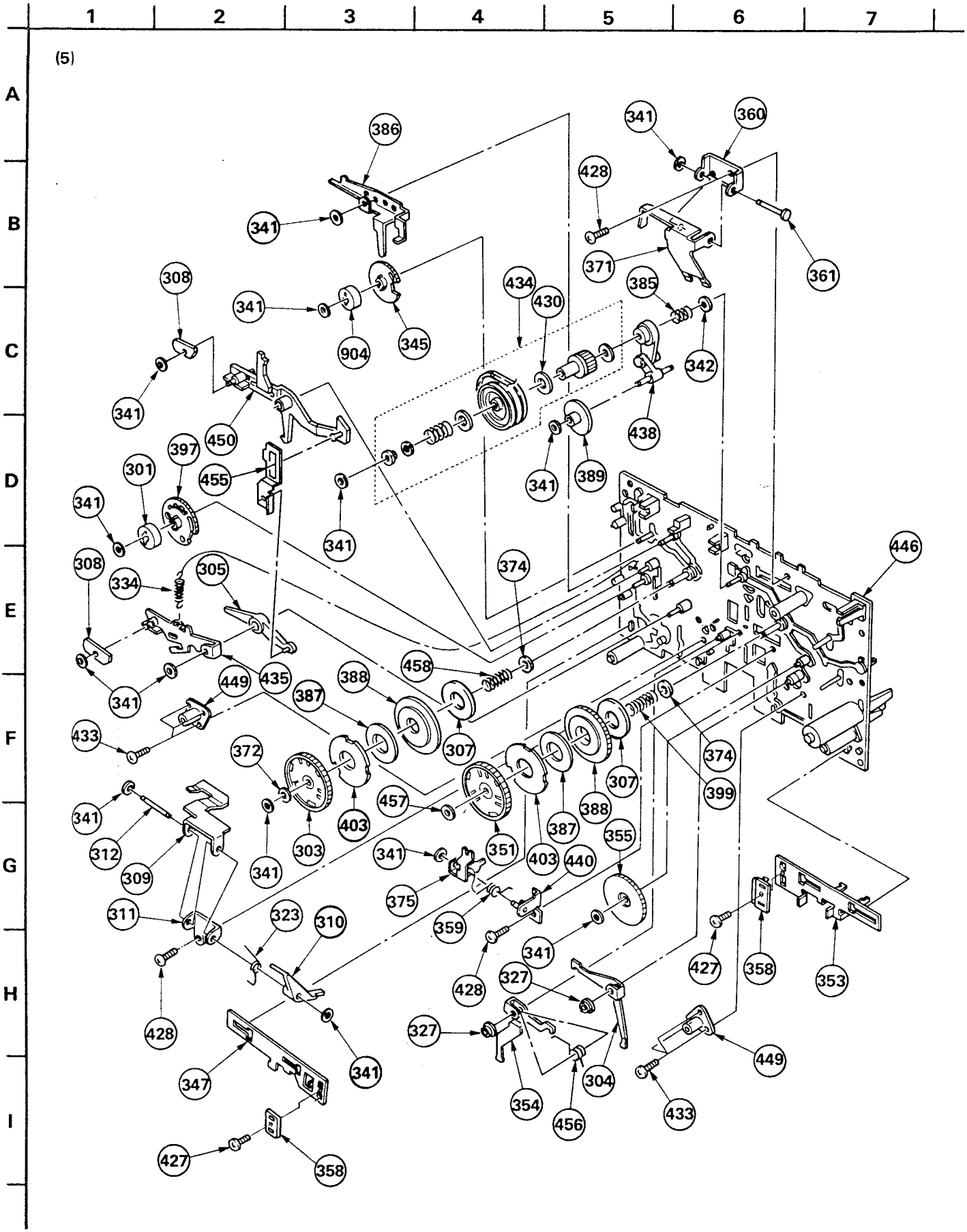


(3)



(4)




1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
(5)
386
341
360
428
371
361
308
341
904
345
434
430
385
342
341
450
438
397
301
455
341
389
341
341
446
308
334
305
374
341
449
435
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458
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403
457
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374
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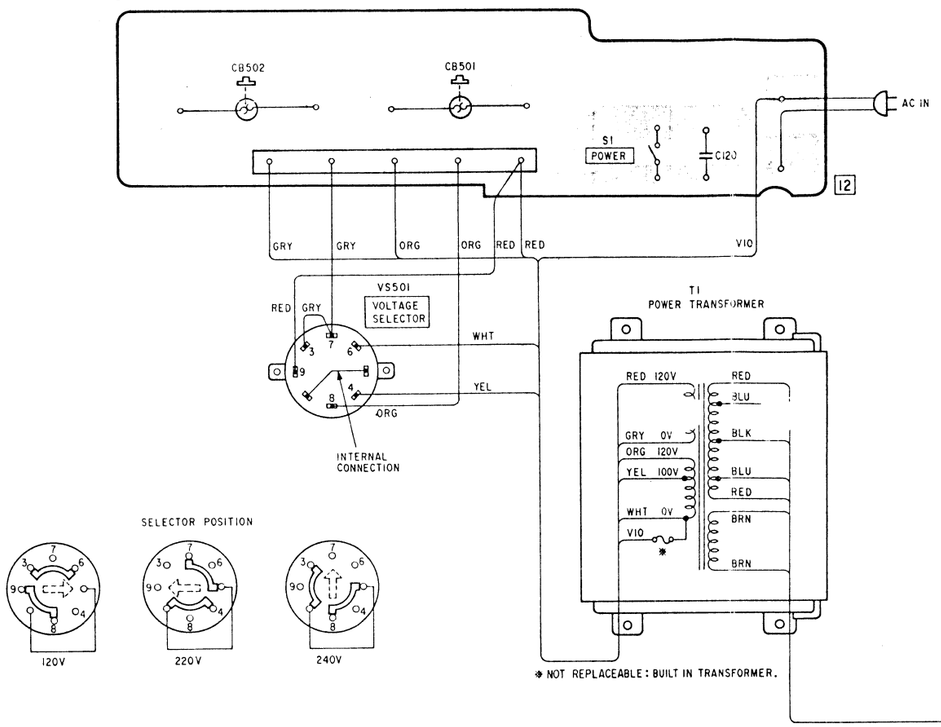
312
309
303
341
351
403
387
388
355
341
375
359
440
311
323
310
341
428
327
427
358
353
428
327
347
341
304
449
354
456
433
427
358

SECTION 3 DIAGRAMS

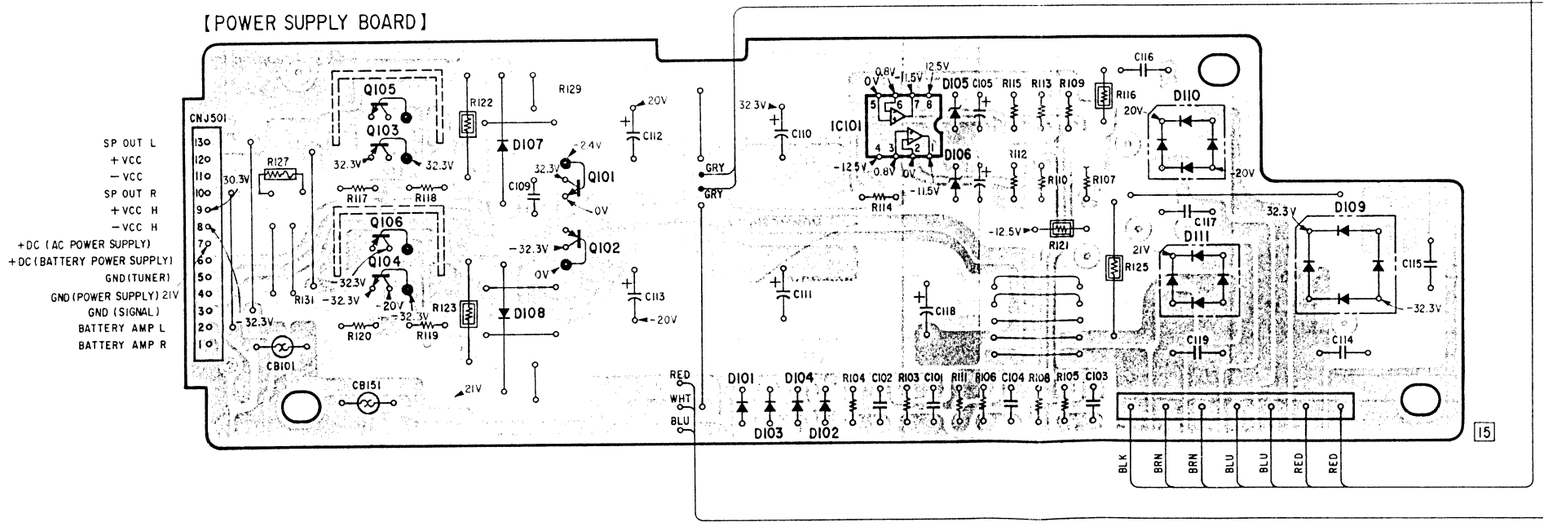
3-1. MOUNTING DIAGRAM

Note:
- ○— : parts extracted from the component side.
- : B + pattern

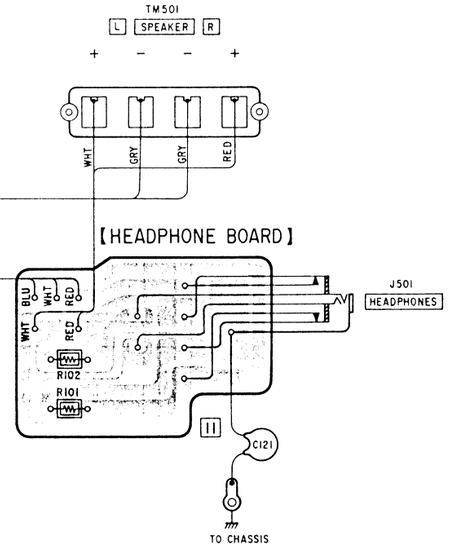
【POWER SW BOARD】



【POWER SUPPLY BOARD】



【HEADPHONE BOARD】



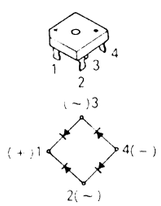
IC Q	105 103 106 104	101 102	IC101			IC Q
D	107 108	101 103 104 102	105 106	110 111	109	D

● Semiconductor Lead Layouts

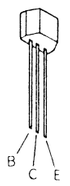
NJM4560D-D

2SB734
2SD774

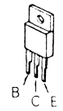
S2VB20
S4VB40



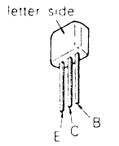
2SC2458
2SC2458-GR



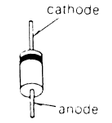
2SA770-Y
2SC1985-Y



2SA1175
2SA1175-F

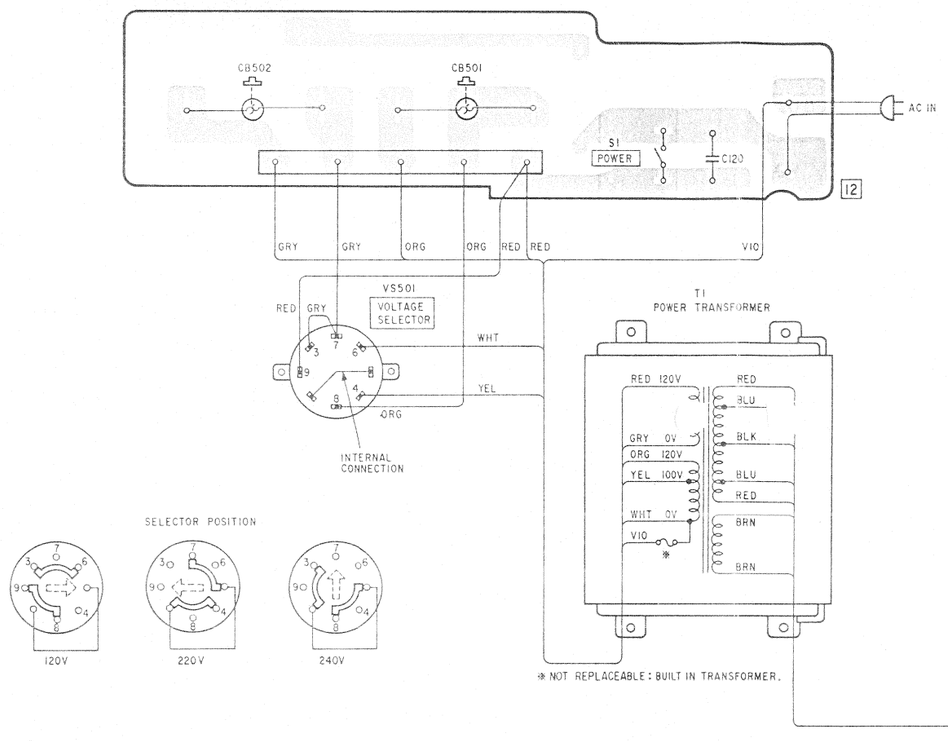


1S1585
1S2076A
30DL4
30DL4FA
EQA01-12R1

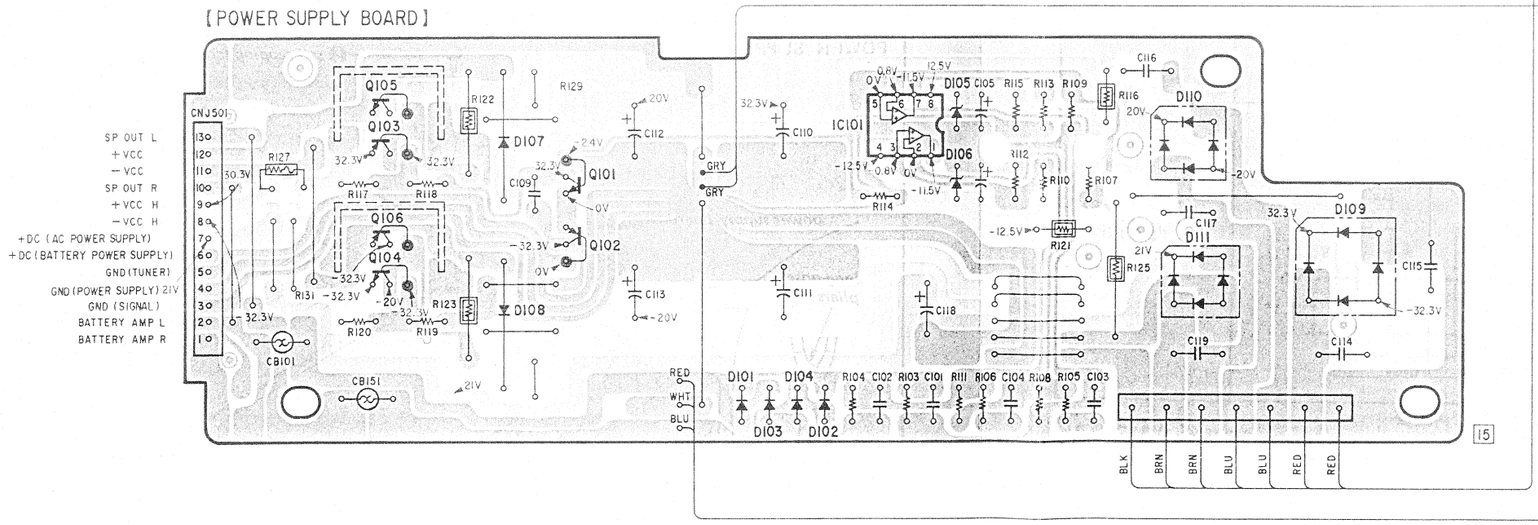


Note:
- ○— : parts extracted from the component side.
- ▒▒ : B + pattern

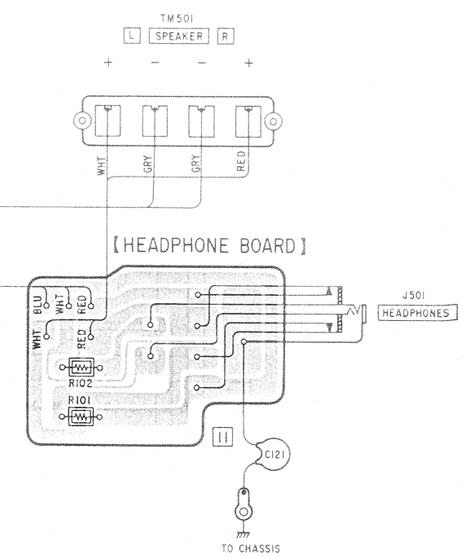
【POWER SW BOARD】



【POWER SUPPLY BOARD】



【HEADPHONE BOARD】



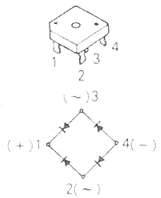
IC · Q	105 103 106 104	101 102	IC101				IC · Q
D	107 108	101 103 104 102		105 106	110 111	109	D

● Semiconductor Lead Layouts

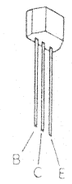
NJM4560D-D

2SB734
2SD774

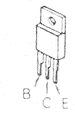
S2VB20
S4VB40



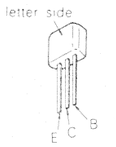
2SC2458
2SC2458-GR



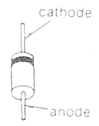
2SA770-Y
2SC1985-Y



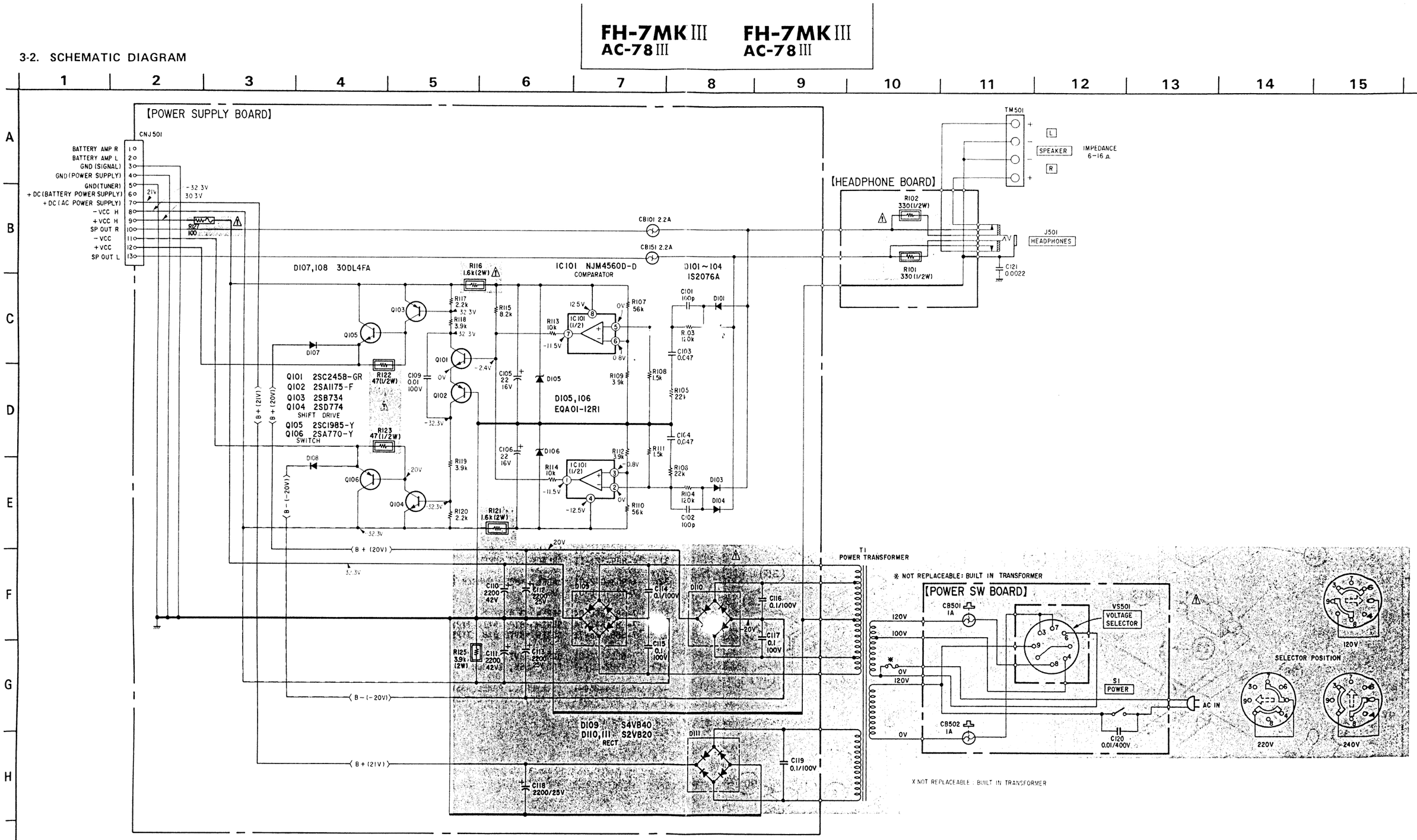
2SA1175
2SA1175-F



1S1585
1S2076A
30DL4
30DL4FA
EQA01-12R1



3-2. SCHEMATIC DIAGRAM



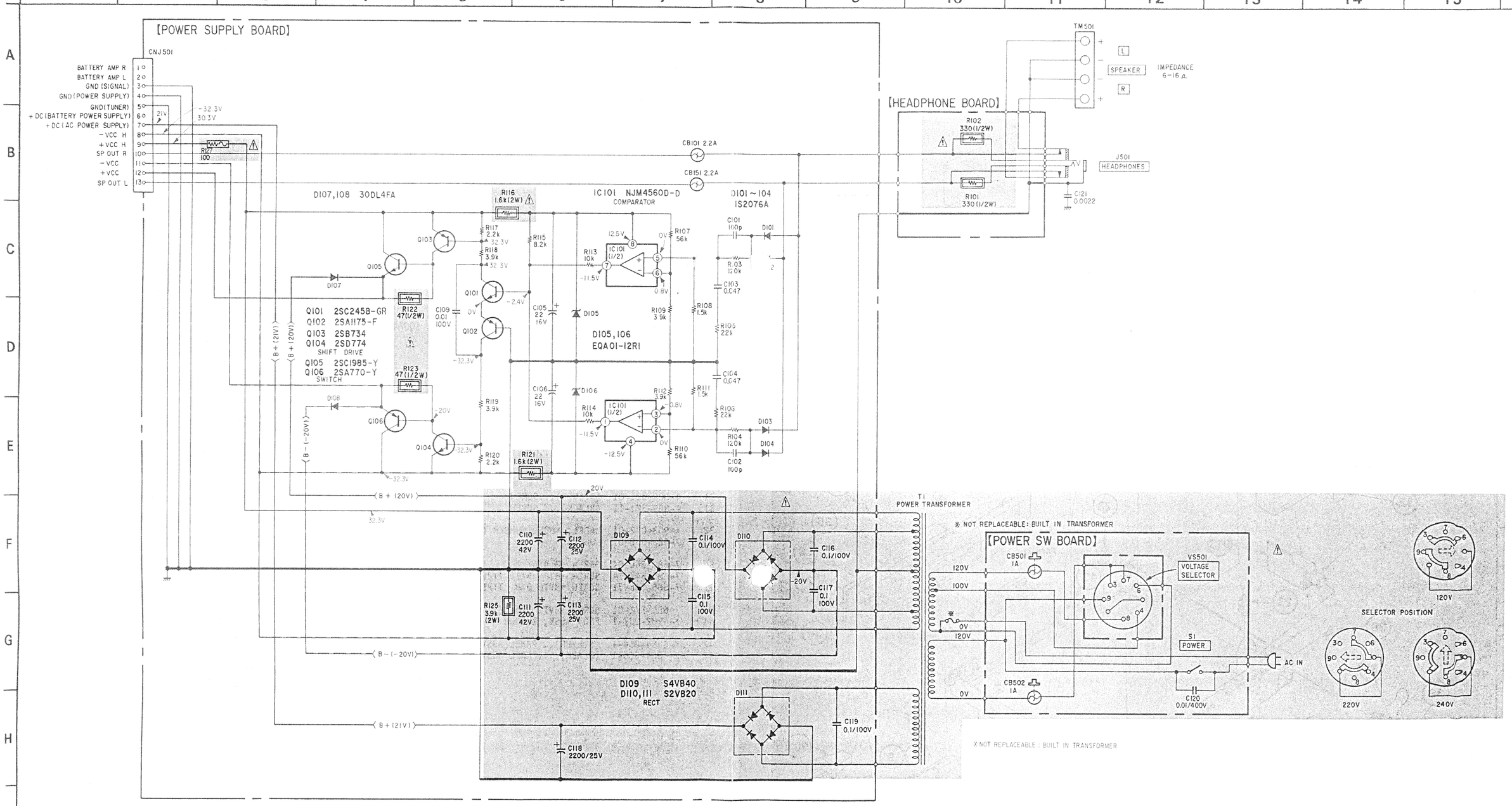
Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- ⊣▭⊢ : nonflammable resistor.
- ⊣∿⊢ : fusible resistor.
- ▭ : panel designation.
- ——— : B+ bus.
- – – – : B- bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a VOM (50kΩ/V).
- Voltage variations may be noted due to normal production tolerances.

Note: Voltages are measured with a VOM (50kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

3-2. SCHEMATIC DIAGRAM



Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- ⊟: nonflammable resistor.
- ⊟: fusible resistor.
- ▭ : panel designation.
- ——— : B+ bus.
- – – – : B− bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a VOM (50kΩ/V).
- Voltage variations may be noted due to normal production tolerances.

Note: Voltages are measured with a VOM (50kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.